THE IRON TRADE REVIEW

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CAR BUYING

PROMISES TO HELP DEMAND FOR STEEL AND IRON.

Pig Iron Stocks Low and Prices Firmer, but Sales Limited—Figuring on Lake Freighters.

Inquiries for freight cars have brought encouragement to the iron market, and specifications against contracts in nearly all lines continue to come in freely, but actual new business placed during the past week has been very light. It is estimated that inquiries for new cars now pending, including 7,000 for the Harriman lines, amount to nearly 20,000, and there is reasonable assurance that orders for 12,000 will soon be placed, causing a very comfortable increase in the demand for various iron and steel products. Reduced cost of building lake vessels is responsible for the figuring now in progress on the construction of several large freighters.

Pig Iron Conditions

Inquiries for pig iron aggregating a considerable tonnage are pending, including about 25,000 tons in the eastern territory, and about an equal number in the central west. Some of these inquiries are apparently sent out to test prices. In the south the market is much firmer, and there is also less irregularity in northern quotations. Pig iron stocks are low all over the country. In the eastern district, accumulations have decreased considerably, and in Ohio and western Pennsylvania, stocks in the yards of merchant interests and of independent steel makers have decreased at the rate of 6,000 tons a week during the past fortnight, and, with the exception of accumulations in the yard of one interest which is holding for higher prices, and of steel making plants, which would use up their surplus in short order with anything like normal conditions, stocks are extremely low. The Corporation stocks are also at low ebb, a course rendered safe by the fact that furnaces can be started on very short notice. In the south, as stated last week, it is estimated that accumulations amount to about 70,000 tons.

Iron Ore Sales Slow

Sales of iron ore are proceeding very slowly. Furnaces are adopting a conservative policy, and are avoiding incurring financial obligations for the payment of ore beyond probable requirements. Salesmen who have visited the east have found little disposition to buy any Lake Superior ore this year.

Heavy Demand for Wire

The demand for wire products continues very active, and the principal interest is operating 80 per cent of its capacity. The production of tin plate is now 52 per cent of capacity, compared with 54 per cent last week. Specifications against billet contracts in the Pittsburg district are now the best of the present year. More interest in sheets is shown by both jobbers and consumers, but there is still considerable irregularity in prices.

Structural Material

The American Bridge Co. has sold 10,000 tons of structural material to a Canadian concern. The abolition of 50 grade crossings by the Baltimore & Ohio railroad in Baltimore will in time require a fair tonnage of steel, and a part of the 4,600 tons on which the Long Island railroad is now receiving bids will be used in grade separation work. Two southern railroads are expected to place orders at an early date for 9,000 tons for bridge work.

GAYLEY DRY BLAST

WILL BE INSTALLED AT NINE MORE STACKS.

Appropriation Made for Permanent Use of the System at Bessemer Plant of Illinois Steel Co. at South Chicago.

Announcement is made that the Gayley dry air blast is to be installed at nine additional western furnaces, licenses for new equipment having recently been granted to the following companies:

Toledo Furnace Co., Toledo, O., two stacks.

Federal Furnace Co., Chicago, two stacks.

Northwestern Iron Co., Mayville, Wis., two stacks.

Youngstown Sheet & Tube Co., Youngstown, O., two stacks.

Cleveland-Cliffs Iron Co., Marquette, Mich., one stack.

Of even more interest to the steel trade is the further announcement that, following a thorough two months' test with the Bessemer process at the South Works of the Illinois Steel Co., the United States Steel Corporation has authorized an expenditure for a permanent installation in connection with this Bessemer plant. The results of the experiments referred to were published in THE IRON TRADE REVIEW of July 2, in the form of a letter from P. H. Dudley, the rail expert, who had carefully investigated the effects of the dry blast on the production of Bessemer steel and on a considerable tonnage of rails rolled from the resulting product.

The several furnace licenses noted above are a remarkable recognition of the merits of the Gayley dry blast, and of the work which it has accomplished at the furnaces of the Warwick Iron & Steel Co., Pottstown, Pa., the South Chicago furnaces of the Illinois Steel Co., and at the Cardiff furnaces in Wales. Although these early installations represent widely varying climatic conditions, they secured practically the same far reaching economy as was obtained with the first installation at the Isabella furnaces of the Carnegie Steel Co. at Pittsburg.

There is apparently no limit to the adaptability of the dry blast. In the blast

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THE WEEK IN IRON CENTERS

PITTSBURG.

Furnace and Coke Oven Activity Slowly Increasing.

Office of THE IRON TRADE REVIEW,
510 Park Bldg., Aug. 18.

The slowness of the iron and steel industry in responding to the efforts being made to promote its renewed strength remains apparent. The consumptive force necessary to drive the industry at its accustomed pace is manifestly lacking, although there are substantial evidences to show that this impetus is on the gradual increase and that the country at large is now absorbing more steel products than in the near past.

Caution is being shown by the larger steel companies not to overreach themselves in the matter of starting idle blast furnaces, thereby finding themselves with a surplus of pig iron upon their hands and rendering necessary a second curtailment of activity. In the face of this careful policy, the furnace operations on the part of the steel companies in the Pittsburg district, particularly those of the Steel Corporation, have reached the highest point since the beginning of the depression and are slowly being increased. This condition in turn is being reflected by the record of the Connellsville coke regions, which for the past 11 weeks is one of gradual improvement in active oven capacity and production. Significance is attached to these facts as indicating the trend of the hour, since it is well settled that almost all the steel products now being rolled by the mills are going direct to consumers.

Though the railroads are showing no change of front as far as extensive buying of iron and steel products goes, it is evident that they are keeping in close touch with the market and their needs. No less than a half dozen of the leading lines of the country are now asking figures upon rolling stock, principally freight cars of steel construction, and it is estimated that from 15,000 to 20,000 cars are involved in these inquiries. It is by no means certain that these orders will be placed at this time, but the presence of the inquiries in the market is not without its wholesome effect upon manufacturers.

Pig Iron.—Beyond a quiet buying by foundry iron consumers for their requirements over the remainder of the year, the market is inactive almost to dullness. In basic the situation is practically lifeless, with Bessemer in a somewhat greater demand. Furnaces are reluctant to sell beyond the end of the present year.

With No. 2 foundry fairly well settled at $14.50 valley or $15.40 Pittsburg, melters with business prospects insuring steady consumption are showing a willingness to take advantage of the situation. Such contracts are being closed without undue flourish, but, in the aggregate, they will undoubtedly run up well into the thousands. The price, $14.50 valley, appears the market's bottom. Sales were put through this week under this figure, but the iron was graded as No. 3.

A local engineering and foundry company closed this week for 4,000 tons, of which 3,000 tons were malleable and 1,000 tons Bessemer, for delivery over the remainder of the year. The malleable went at $14.75 valley and the Bessemer is reported to have been closed at about the prevailing market price of $15.40 valley. An iron and steel company took 1,000 tons of Bessemer at the market level.

The basic market has shown little appearance of life for weeks. It is nominally held at $15 valley, although some sellers, in the absence of any demand, are asking higher prices. Forge iron is also nominally $14 valley, which can be shaded. The inquiry for all grades in the market has fallen off, but there are a number of small deals under negotiation. One company is asking prices on 1,000 tons of Bessemer and 500 tons of No. 1 foundry. Southern iron is not attractive to buyers in this market since the recent increase of prices.

The activity of merchant furnaces in the valleys shows no change, 11 out of 19 stacks being in operation. Stocks are stationary. Corrigan-McKinney & Co. have fired their Josephine furnace on foundry iron, after a protracted idleness. The Carnegie Steel Co. is also about to increase its active furnace list by the addition of one stack at its Lucy group. On third and last quarter shipment on northern iron, we quote as follows:

Bessemer, valley	$15.35 to 15.50
Bessemer, Pittsburg	16.25 to 16 40
No. 1 foundry, Pittsburg	15.90 to 16.15
No. 2 foundry, Pittsburg	15.40 to 15.65
Gray forge, Pittsburg	14.90 to 15.15
Basic, valley	15.00 to 15.50
Basic, Pittsburg	15.90 to 16.40

Ferro Alloys.—Considerable inquiry is current in ferro-manganese, but sales are few. A local steel company is in the market for from 200 to 300 tons, scattered over eight months' delivery. On forward material, we quote $44 to $45 Baltimore, or $45.95 to $46.95 Pittsburg, with lower prices for prompt shipment. Some interest is noted in ferro-silicon, but carload sales are the rule. Fifty per cent is irregular in price.

Imported 50 per cent ferro-silicon is quoted $70 Pittsburg on forward deliveries; domestic 12 per cent, $29; 11 per cent, $28; 10 per cent, $27. The lower grades of imported ferro-silicon are upon about the same basis. These quotations are applicable to Pittsburg territory.

Plates.—Half a dozen railroads are asking tenders upon equipment from car companies, and it is estimated that from 15,000 to 20,000 cars largely of all steel construction are being figured upon at the present time. Included in this total are the inquiries for 7,000 cars of the Harriman lines, for 1,500 cars of the Chicago & Alton, of the New York Central, of the Chicago & Northwestern, and of other lines. A vast amount of steel plate and other steel products will be required, if these contracts are let. The plate market at present is only fairly active, but there is a large tonnage for pipe line manufacture now moving. There is shading of prices on the narrow gages. We quote:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—Throughout the country there is an awakened interest in

sheets on the part of jobbers and consumers, and the volume of specifications is gradually increasing. Stocks remain low, however, and are not being replenished. The American Sheet & Tin Plate Co. has increased its operations to 60 per cent as against 57 per cent last week, the Hyde Park plant of six mills and the Leechburg plant of 11 mills having resumed operations. Some of the smaller sheet mills are shading prices. We quote:

Black steel sheets, cold rolled, No. 28 gage, $2.50 per 100 pounds, and galvanized sheets, No. 28 gage, $3.55 per 100 pounds, plus the regular extras.

Blue annealed: Nos. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation; and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Tin Plate.—Tin plate production declined this week, the percentage of activity of the leading interest being 52 compared with 54 last week. It is expected that operations will be maintained on about this basis for several months. The independents generally are working upon full schedules and expect to continue at this gait, into September. We quote:

Coke tin plate, 100-pound basis, 14 x 20, $3.70 f. o. b. mill Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—The Carnegie Steel Co. has received some releases from the railroads on held-up tonnage of standard rails, and is operating its three mills at the Edgar Thomson works at a slightly increased capacity. The report that an adjustment has been made with the Pennsylvania railroad regarding its specifications for its order of 55,000 tons is not confirmed. Light rail bookings in the week were not so heavy, but the market continues active. Spikes are being taken only in small lots. On present specifications on Bessemer rails, we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; angle splice bars for standard sections, $1.65; standard spikes, $1.70 to $1.80 Pittsburg; hand spikes, $1.80 to $1.90 Pittsburg.

Steel.—Specifications against billet contracts have materially increased, and the rolling schedules of the leading mills in this district are the best of the present year. New business is not heavy, one inquiry of 1,000 tons being current. Sheet and tin bars are less active, owing to the falling off of tin plate activity.

Bessemer and open-hearth billets, base sizes, are quoted at $25 Pittsburg, and forging billets at $27 Pittsburg, subject to the division of the freight charge over $1 and not exceeding $3, and sheet and tin bars at $27.50 Pittsburg, valley and Wheeling territory, and $27 Pittsburg for delivery to other points.

Hoops, Bands and Cotton Ties.—A fair amount of business in hoops and bands is being booked, but specifications against old contracts constitute the main movement in the present off season for these products. We quote:

Cotton ties, 85c per bundle Pittsburg, plus the freight on lots of 3,000 bundles or more, and 88c per bundle Pittsburg for less than 3,000 bundle lots.

Hoops in carloads lots, 1.80c; in less than carload lots, 1.90c; bands, 1.40c, base half extras as per standard steel.

Merchant Bars.—Steel bar business continues in a fairly comfortable position. Many principal consumers have covered for their requirements and specifications are coming freely. The implement people are not specifying as heavily as they have been, but this is attributable to the present month falling between seasons in this line of manufacture. Steel bar stocks in the country are very low, and the ground work is laid for excellent conditions when consumptive demands increase. Rerollers are not so active in underselling the market on bars and specialties, and are reluctant to sell far ahead, owing to the unsettled conditions in the scrap market. The bar iron market has not gained any strength. We quote:

Common iron bars, 1.40c Pittsburg in carload lots and over; 1.45c in less than carloads; 1.32c to 1.35c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3 inches, 1.50c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting 56 per cent in carloads, and 52 per cent less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.80c base. Iron finished tire under 1½ by 1¼ inches, 1.75c; iron finished tire, 1½ by 1¼ and over, 1.60c. All tire subject to ½ extra on the steel card.

On cold rolled strip steel, width 1½ inches and wider, and 0.100 inch and thicker, we quote base prices per 100 pounds, $3.35 on hard, and $3.60 on soft.

Structural Material.—Improvement in the market with respect to inquiries is apparent, but the under-bidding of fabricators continues to make the situation unsatisfactory. Specifications to the mills are better, and fair schedules are being maintained. The First National Bank of Pittsburg has taken bids on the steel for both a five-story and 24-story structure, requiring 1,600 and 4,200 tons respectively. It has not been determined which building will be erected, but it is likely that the five-story structure, sufficiently massive for an eventual elevation to 24 stories, will be put up at this time. The Riter-Conley Co. has taken 1,000 tons for the new boiler shop of the Heine Safety Boiler Co., St. Louis. We quote:

Beams and channels, 15-inch and under, 1.60c; over 15 inches, 1.70c; zees, $1.60c; tees, 1.65c; angles from 3 to 6 inches, 1.60c; over 6 inches, 1.70c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Merchant Pipe.—The pipe market continues one of the most active of the iron and steel industry, with line pipe commanding the strongest demand. The National Tube Co. is working on heavy specifications from the Standard Oil Co., which is aggressively constructing lines in the various oil and gas fields. Inquiries are plentiful, and at present bids are being asked on a total of about 100 miles of 6 and 8-inch pipe for several projects in the Canadian and western oil fields. A sale of the week noted is that of five miles of 4-inch pipe for Oklahoma. Merchant pipe is in more active demand, and jobbers are increasing their specifications. We quote the following official base discount, with an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
¼ to 6 inches....	75	65	73	63

Boiler Tubes.—There is a gradual increase in the boiler tube trade, but the railroads are not contributing to this activity more than for maintenance purposes. We quote the following official base discount to the general trade:

BOILER TUBES.	Iron.	Steel.
2¼ to 5 inch.....	52	65

Wire Products.—A healthier condition prevails in the market for wire pro-

ducts, and the pessimistic spirit of the past appears to have about been eliminated. Increased business is being taken, and consumers are asking immediate deliveries. Jobbers are ordering better, but are neglecting stocks. We quote:

Wire nails, jobbers' carload lots, $1.95; retailers' carload lots, $2.00; painted barb wire, jobbers' carload lots, $2.10; retailers' carload lots, $2.15, with 30c for galvanizing; plain wire to jobbers in carloads, 1.80c; and to retailers in carloads, 1.85c.

Wire Rods.—Manufacturers are more actively buying rods and there is increased desire to cover for a year ahead. We quote $33 Pittsburg on Bessemer and $34 Pittsburg on open-hearth rods.

Coke.—The scarcity of water in the coke regions has again reached an acute stage in some sections, particularly Westmoreland county, and some operations have been obliged to close because of the drouth. Tank cars are being run to some plants to supply their needs. The coke market is rather quiet, though occasionally companies are closing for their requirements for foundry coke over the next year. A sale of from 20,000 to 25,000 tons of furnace coke for delivery to a furnace company over the remainder of the year was made this week at about $1.75 ovens. We quote standard Connellsville foundry at from $2 to $2.25 ovens, and standard Connellsville furnace coke at from $1.65 to $1.85 ovens, immediate shipment material bringing lower prices. Production is gradually increasing. The totals of the *Courier* for the week ending Aug. 8 were 18,152 ovens in blast, 19,198 ovens idle, and an output of 192,845 tons, against 18,156 ovens active, 19,361 ovens inactive, and a production of 189,423 tons the preceding week.

Old Material.—The dealers who have been buying heavy melting stock and storing it for an expected rise in the market are less aggressive than they have been and conditions, in this degree, are less active. The mills are buying as guardedly as before. Under pressure of a strong demand, some high prices for heavy steel are mentioned, and it is reported that both the B. & O. and Pennsylvania railroads were able to obtain $15.50 for their accumulations. At this price, heavy steel and basic pig iron are squarely upon an equality, a rather unusual though not unprecedented situation. The sharp call for long rails has prompted the Pennsylvania to elevate its asking price on its accumulated lot of 20,000 tons to $18. We quote gross tons delivered in the Pittsburg territory as follows:

Heavy melting scrap, $14.50 to $15; re-rolling rails, $16.00 to $17.00; bundled sheet scrap, $11.50 to $12; iron axles, $20.50 to $21; old iron rails, $16 to $17; No. 1 wrought scrap, $14 to $14.50; old car wheels, $14.50 to $15.00; low phosphorus, $18 to $18.50; machine shop turnings, $9 to $9.50; cast borings, $8.50 to $9; No. 1 cast scrap, $14 to $14.50; malleable, $14.

CHICAGO.

New Transactions Not Important, But Specifying is Encouraging.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Aug. 18.

While such transactions as were reported for the past week have not been of themselves sufficient in import to mark them as noteworthy, the volume and character of routine specifying against contracts and the general activity in industry have been such as to preserve the cheerful tone of the market. The present movement in the market is distinctly though very moderately bullish. In pig iron, this is most clearly shown in the south, where prices have been advanced to a minimum of $12.50 for No. 2 Birmingham. Not much iron is being moved at that price however. In all the lines of manufacture affected by railroad car repairing the influence of increased operations in that direction are being felt. The scrap iron market is more pronouncedly than any other department, displaying evidences of the expectation of higher prices. In finished material, structural steel and plates for small miscellaneous jobs show material gains in the volume of the demand and mills report that orders from jobbers for the replenishment of stocks are responsible not only for the increase but for a large proportion of their total business. This indicates the character of the business which is largely for small amounts to be shipped at once. Sheets, particularly galvanized, registered gains in the tonnage moved during the week. Railroad buying was fair, but so distributed as to mark no particular transactions for especial notice. The placing of contracts for structural steel in quantity was very limited. Aside from the industries benefited directly by the demand from rural districts, there is still prevalent a decided conservatism with reference to the extension of outlay in the development of new business.

Pig Iron.—The pig iron situation as reviewed during the week just past presents no new phases. The support of the market is in the strength of the southern irons which are now firmly established with a minimum price of $12.50 for No. 2 Birmingham and with some interests asking $13 and not anxious for business at that price. Local irons are held at $17 for the most part, because that is approximately equivalent to the delivered price of southern iron at the prevailing price. In the valleys, northern prices average about 50 cents below the delivered price of southern iron and the influence of this weakness is more or less perceptible in this market. Reports from a number of foundry interests indicate that a substantial increase has developed in the quantity of iron being melted. This improvement is not equally distributed in all localities, but is sufficiently pronounced to insure a steady movement of iron under contract. In the last 10 days, inquiry has been very light and such orders as have been placed are for small tonnages. While some small lots of iron, for which a quick sale is desired, may be obtained at less than $12.50, a sale of 500 tons of southern iron which went at $12.50 and a sale of 1,000 tons of northern iron on the basis of $17 local furnace about represent the market. We quote as follows:

Lake Superior Charcoal	$19.50 to 20.00
Northern Foundry No. 1	17.50 to 18.00
Northern Foundry No. 2	17.00 to 17.50
Northern Foundry No. 3	16.50 to 17.00
Southern Foundry No. 1	17.35 to 17.85
Southern Foundry No. 2	16.85 to 17.35
Southern Foundry No. 3	16.35 to 16.85
Southern Foundry No. 4	15.85 to 16.35
Southern No. 1 Soft	17.35 to 17.85
Southern No. 2 Soft	16.85 to 17.35
Southern Gray Forge	15.60 to 16.10
Southern Mottled	15.35 to 15.60
Southern Silveries, 4 per cent Silicon	18.85 to 19.35
Southern Silveries, 5 per cent Silicon	19.35 to 19.85
Southern Silveries, 6 per cent Silicon	19.85 to 20.35
Jackson Co. Silveries, 6 per cent	19.90 to 20.40
Jackson Co. Silveries, 8 per cent	20.90 to 21.40
Jackson Co. Silveries, 10 per cent	21.90 to 22.40
Malleable Bessemer	17.25 to 17.75
Standard Bessemer	18.25 to 18.75
Alabama Basic	16.35 to 16.85

Billets and Rods.—No transactions of interest involving billets or rods are reported for the past week. Specifications on contracts are alone responsible for what little movement exists. We quote 4 x 4 inch rolling billets $26.50 and forging billets $28.50 base, Chicago. We quote f. o. b. Pittsburg, Bessemer wire rods, $33; open hearth, $35; chain rods, $33.

Merchant Bars.—The steel bar business is now well established in its course and beyond the fact that specifications continue normally active, the week developed nothing of unusual interest. Despite the reports and evidence of work in considerable volume in connection with car repairs, the bar iron situation is woefully lacking in life. Indications of better things may be found, however, in the more hopeful and confident tone of the market and the freer acceptance

of quoted prices by consumers. We quote Chicago delivery as follows:

Bar iron, 1.50c to 1.53c; soft steel bars and bands, 1.58c, half extras; soft steel angles, less than 3 x 3, 1.68c; hoops, 1.98c base, full extras; planished or smooth finished tire steel, 1.78c; iron finish, up to 1½ x ½-inch, 1.73c base tire card; iron finish, 1½ x ½-inch and larger, 1.58c base steel card; channel for solid rubber tire, ¾ to 1-inch, 2.08c, and 1⅛-inch and larger, 1.98c; smooth finished machinery steel, 1.83c; flat sleigh shoe, 1.63c; concave and convex sleigh shoe, 1.83c; cutter shoe, 2.05c; toe calk steel, 2.13c; railway spring, 1.93c base steel card; vehicle spring steel, 1.98c base, vehicle card; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 56 per cent off the list for carload lots, and 52 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.90c to 2c, full extras; soft steel bars, 1.80c per 100 pounds base, plus half extras; soft steel hoops, 2.30c, full extras.

Plates.—The interest displayed in plates as shown by the continuance of specifications in increased volume was not diminished during the week. The movement of plates from store as compared with other lines was one of the strongest features of the week. The specifications and orders are confined to small lots from carloads to 500 tons on mill orders and to orders of corresponding size from store. We quote as follows:

Plates, ¼-inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.78c Chicago. For extras see Pittsburg report. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼-inch and heavier, up to 72 inches wide, 2c to 2.10c; from 72 to 96 inches wide, 2.10c to 2.20c; 3/16-inch up to and including 60 inches wide, 2.10c to 2.15c; 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.10c to 2.15c; flange and head quality, 25c extra.

Sheets.—Aided by a more liberal buying on the part of jobbers generally, the demand for sheets from mill was improved as compared with a considerable period preceding. Galvanized sheets in particular moved freely and there was also a more or less extensive replenishing of stocks of blue annealed. Quick deliveries are asked on all shipments. Stocks of material in store are still being maintained at a minimum and will be as long as shipments from mill can be obtained as quickly as at present. Prices are being well maintained and are disputed much less frequently than formerly. For mill prices, see Pittsburg report. We quote store prices Chicago delivery, as follows:

No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; Nos. 18-20, 2.60c to 2.65c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, No. 10 to 16, 3.05c to 3.10c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Structural Steel.—The number of orders for odds and ends and small tonnages of structural material for a wide range of uses is unusually large at present, but contracts for tonnages of importance are few. During the week past the only contracts taken by the leading fabricator were a miscellaneous assortment totalling 750 tons. Other fabricators report very little business of mentionable size. The sanitary district is again asking bids for opening Sept. 2 for an eight track single leaf lift bridge over the drainage canal. The terminal project of the railroads now using the old Union depot, including the Pennsylvania, Chicago, Milwaukee & St. Paul, Burlington and Chicago & Alton, is assuming definite form and it is understood that the work of obtaining estimates is not far distant for the 25,000 tons of structural steel that will be required. The fabricating of the 10,000 tons of steel for the Oliver building, Pittsburg, will be begun this week. The contract has just been closed with the Carnegie Steel Co. The Chicago City Railways is still in the market for about $75,0000 worth of structural steel and special track work. We quote as follows:

Beams and channels, 3 to 15 inches, inclusive, 1.78c to 1.81c delivered Chicago. For extras see Pittsburg report. Quotations from store are as follows for carload lots and over:

All angles, 3 inches and larger, including 6 inches, $1.95 per 100 pounds; angles over 6 inches, $2.05 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.95 per 100 pounds, base; channels, 3 inches and larger, $1.95 per 100 pounds, base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—While the aggregate of orders for rails, bolts and spikes was fair last week, no large contracts were placed. One railroad ordered 2,000 kegs of bolts and 1,200 kegs of spikes and several hundred tons of light rails were specified. Prices on bolts have been very weak for some time past and we have reduced our quotations. The Pennsylvania Steel Co. reports taking a good tonnage of special track work during the week. We quote as follows:

Standard rails, $28 f. o. b. mill, full freight to destination; light rails, 25-pound to 45-pound, $28; 20-pound, $29; 16-pound, $30; 12-pound, $31. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.05c to 2.10c; with hexagon nuts, 2.20c to 2.25c. Small railroad and square boat spikes, 1.90c base, f. o. b. Chicago.

Cast Iron Pipe.—A letting for 1,000 tons of pipe at Decatur, Ill., is scheduled for this week, but aside from this the cast iron pipe market is very quiet. The awarding of the 1,000 tons at Cheyenne, Wyo., has not been announced as yet. Routine business made up of miscellaneous orders is fair and prices are reasonably firm, but the movement is not up to the capacity of the pipe shops. We quote 4 to 6-inch pipe, $27; 6 to 16-inch pipe, $26; larger sizes, $25; gas pipe $1 a ton higher.

Merchant Pipe and Boiler Tubes.—The improvement in merchant pipe specifications continues to grow in volume.

We quote mill discounts, Chicago delivery, carload lots, as below. On steel pipe jobbers are allowed a concession of one point and 5 per cent additional from the schedule in force.

	—Steel—	
	Black.	Galv.
¼ to 6 inches, inclusive.....	73.2	63.2
7 to 12 inches, inclusive.....	70.2	55.2

BOILER TUBES.			
	Steel.	Iron.	Seamless.
2¼ to 5 in., inclusive....	63.2	50.2	50.2

Mill quotations on iron pipe are three points higher than the foregoing prices.

We have revised our prices from store, as below. A concession of one-half to one point from these prices is allowed by Chicago jobbers on carload orders shipped from local stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.

	—Steel—	
	Black.	Galv.
⅛ to ¼ inch.....	65	49
⅜ inch	67	53
½ inch	69	57
¾ to 6 inches.....	73	63
7 to 12 inches.....	69	54

Store prices for wrought iron pipe, carload lots, from Chicago stock, are as follows: One-eighth to ¼-inch,

61; ⅜-inch, 63; ½-inch, 65; ¾-inch to six inches, 70; 7 inches to 12 inches, 67. Boiler tubes from store are unchanged at 60 off.

Wire Products.—With mills operating up to 80 per cent of capacity, the leading interest is finding it difficult to meet the demand from customers for quick shipment. No diminution in the movement of wire products is apparent and interest attaches alike to wire nails, barb wire and smooth wire. The improvement in the crop situation in many localities following the recent rains has served to brace up the wire trade. We quote as follows:

Wire nails, $2.13; painted barb wire, $2.28; galvanized barb wire, $2.58; smooth annealed wire, $1.98; smooth galvanized wire, $2.28; polished staples, $2.23; galvanized staples, $2.53. Carload lots to retailers, 5 cents higher; less than carload lots, 15 cents higher.

Coke.—Reports from the east are to the effect that strength has been added to the coke market as a result of the starting up of more ovens. Local prices have not reflected this and we continue to quote as follows: Standard Connellsville foundry coke, $2 to $2.25 and furnace coke for prompt shipment, $1.80 to $1.95 at the ovens.

Old Material.—The change in the consumptive demand of mills and foundries as affecting scrap, while scarcely preceptible save in isolated instances, is undoubtedly in the direction of increases. Dealers having weathered the period of extreme dullness, seem not at all anxious to sell and at the same time absorb the offerings of scrap on the market freely, either paying good prices themselves or forcing other bidders to do so in order to obtain the material. No. 1 railroad wrought was sold by the Santa Fe last week for $13.50. Our quotations are undoubtedly close to the bottom of the market, and, while it should be possible to obtain small lots at these prices, it is scarcely likely that large tonnages would be disposed of at this level. We quote gross tons in the first paragraph, as follows:

Old car wheels	$15.50 to 16.00
Old iron rails	16.75 to 17.25
Re-rolling rails (3 ft. and over)	15.75 to 16.25
Old steel rails (3 ft. and under)	14.25 to 14.75
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	14.25 to 14.75
Heavy melting steel	13.00 to 13.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$13.00 to 13.50
No. 2 R. R. wrought	12.00 to 12.50
Knuckles, couplers and springs	12.75 to 13.25
Shafting	16.00 to 16.50
Iron car axles	17.75 to 18.25
Steel car axles	16.50 to 17.00
Dealers' forge No. 1	10.00 to 10.50
Pipes and flues	9.50 to 10.00
No. 1 cast, 150 lbs. and less	12.75 to 13.25
No. 1 mill	7.50 to 8.00
Mixed busheling (Nos. 1 and 2)	7.50 to 8.00
Country sheet	5.00 to 5.50
No. 1 boiler cut	9.25 to 9.75
Boiler punchings	11.50 to 12.00
Cast borings	5.50 to 6.00
Mixed borings, etc	5.50 to 6.00
Machine shop turnings	6.75 to 7.25
Railroad malleable	12.25 to 12.75
Agricultural malleable	11.00 to 11.50
Stove plate and light cast scrap	11.00 to 11.50
Old iron splice bars	16.00 to 16.50

CLEVELAND.

Contract for Pope Building Let—Ore Selling Slowly.

Office of THE IRON TRADE REVIEW, Browning Building, Aug. 18.

Iron Ore.—Sales of iron ore are being made at a very slow rate. One interest during the week sold 43,000 tons, the largest sale being for 20,000 tons. Many furnace interests are postponing buying as long as possible, as they do not wish to incur financial obligations without being sure that the ore will be needed before the opening of navigation next year. The strike of laborers on the ore docks at Superior and Marquette has interfered with the ore shipments to some extent, but the men are returning to work, and it is expected that normal conditions will soon be restored. The outlook is that very little ore will be sold this year to furnaces in the eastern part of the country.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70, and Mesabi non-Bessemer, $3.50.

Pig Iron.—Prices of both northern and southern pig iron are firmer, and little, if any, iron can now be bought in the valleys at $14.50 at the furnace, the usual price being $15, which is sometimes shaded. Sales during the past week have been very moderate, but an encouraging sign has been the increased demand for the delivery of iron on old contracts, especially by malleable foundries. An inquiry for 3,000 tons of basic from Chicago is pending. We quote, f. o. b. Cleveland, as follows:

Bessemer	$16.55 to 16.65
No. 1 foundry	15.40 to 15.80
No. 2 foundry	15.25 to 15.65
No. 3 foundry	14.90 to 15.25
No. 2 southern	15.85 to 16.10
Gray forge	14.00 to 14.50
Lake Superior charcoal	19.50 to 20.00

Coke.—Very few sales of either foundry or furnace coke are reported. On contracts we quote furnace coke at $1.60 to $1.80, and foundry coke at $2 to $2.25.

Finished Material.—There is some indication of increased demand, and specifications, particularly from chain making concerns and implement manufacturers, are coming in satisfactorily. There is still considerable irregularity in prices of sheets. Orders of fair size for bar iron have been received from the railroads. The Union rolling mill has now been in operation for a month, and the Empire for 10 days. The contract for 3,000 tons of structural steel for the Pope building has been awarded to the Pittsburg Steel Construction Co., and the steel will be furnished by the Lackawanna Steel Co.

Old Material.—While no changes in prices have been noted during the week, rolling mill material is held as softening, steel being maintained generally. Large railroad lists closed without appreciable effect upon the market, but merely nominal amounts of this material were absorbed. It is believed that the railroads are anxious to maintain the present unbroken front to the market and will not throw out large quantities indiscriminately. In consequence the following quotations, f. o. b. Cleveland, are continued:

Old iron rails	$16.50 to 17.00
Old steel rails (re-rolling)	15.00 to 15.50
Old steel rails (under 6 ft.)	15.00 to 15.50
Old car wheels	15.00 to 15.50
Old steel boiler plate	12.50 to 13.00
Steel axles	18.00 to 18.50
Malleable iron (railroad)	13.50 to 14.00
Malleable iron (agricultural)	11.50 to 12.00
Heavy steel	14.00 to 14.50
Country mixed steel	12.00 to 12.50
Low phosphorus	16.00 to 16.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.50 to 13.00
No. 1 busheling	11.00 to 12.00
No. 1 machine cast	12.00 to 13.00
Iron axles	17.00 to 18.00
Axle turnings	9.50 to 10.00
Machine shop turnings	7.50 to 8.00
Grate bars	11.00 to 11.50
Pipes and flues	11.00 to 11.50
Tank iron	11.00 to 11.50
Hoop and band iron	8.00 to 8.50
Sheet iron	6.00 to 6.50
Wrought drillings	7.50 to 8.00
Stove plate	11.00 to 11.50
Cast borings	7.00 to 7.50

CINCINNATI.

Southern Pig Iron Firm—Low Prices at Some Ohio Furnaces.

Office of THE IRON TRADE REVIEW, First National Bank Bldg., Aug. 18.

Pig Iron.—The southern pig iron market continues firm, with most producers asking $12.50 Birmingham and some important interests $13. The northern furnace interests in southern Ohio continue to quote $15 furnace for No. 2 foundry, and are taking some business for the first quarter of next year on this basis. We

note a sale of 1,500 tons of malleable iron to an Ohio consumer at this price for deliveries extending into next year. The southern furnaces positively decline to consider tonnage for 1909. There is considerable inquiry for small tonnages from 300 to 1,000 tons, the bulk of which is for next year's requirements, and on which sales agencies are unable to quote on southern iron. It is understood that an important inquiry is under consideration in Michigan territory, involving a large tonnage, for deliveries far in the future, and it is understood that, if the buyer is unable to get the long time delivery feature, the tonnage will be considerably cut down. Another large melter is in the market for from 10,000 to 15,000 tons, for last quarter delivery; the placing of which will depend upon ability to secure a favorable price. There is an inquiry from an Ohio melter for about 3,000 tons, one-half northern and one-half southern iron. A few sales of southern iron have been made at $12.50 Birmingham, but some resale iron and some old quotations have been protected on the $12 basis. It is intimated that southern Ohio furnaces have taken some desirable business at $14.75 for No. 2 foundry at furnace. The general market is comparatively quiet, and the tonnage sold during the week has not been large. With the majority of the producers in the south holding for $12.50 Birmingham and northern furnaces still continuing to quote $15 Ironton, there are but few points in Ohio, Indiana and Michigan where southern iron can be sold in competition with northern. A small proportion of southern iron for mixture purposes will perhaps continue to sell in the north, but melters will buy, as a rule, the bulk of their requirements at the cheapest price, so that, as the situation stands, southern iron is practically held at prohibitive prices in northern territory. The following table of comparative delivered prices of Birmingham and Ironton iron is interesting, showing the exact premium which $12.50 Birmingham places on southern iron in most of the territory.

COMPARISON OF DELIVERED PRICES OF NORTHERN AND SOUTEHRN IRONS ON BASIS OF $12.50 BIRMINGHAM AND $15.00 IRONTON.

	Birmingham Iron.	Ironton Iron.
Bucyrus, O.	$16.75	$16.20
Cincinnati, O.	15.75	16.20
Columbus, O.	16.45	15.95
Crestline, O.	16.75	16.20
Findlay, O.	16.75	16.35
Galion, O.	16.75	16.20
Hillsboro, O.	16.20	15.75
Lancaster, O.	16.55	16.15
Lima, O.	16.60	16.25
Mansfield, O.	16.75	16.10
Marion, O.	16.75	16.20
Mt. Vernon, O.	16.75	16.20
Newark, O.	16.60	16.20
Piqua, O.	16.40	16.20
Sandusky, O.	16.75	16.35
Tiffin, O.	16.75	16.35
Wapakoneta, O.	16.60	16.25
Connersville, Ind.	16.40	16.50
Dayton, O.	16.20	16.15
Hamilton, O.	16.10	16.20
Richmond, Ind.	16.40	16.20
Springfield, O.	16.40	16.15
Ann Arbor, Mich.	17.00	16.95
Bay City, Mich.	17.40	17.40
Detroit, Mich.	17.00	16.75
Lansing, Mich.	17.10	17.30
Fort Wayne, Ind.	16.60	16.60
Toledo, O.	16.75	16.35

It will be noted that southern iron is lower than northern at only four points, Cincinnati, Connersville, Ind., Hamilton, O., and Lansing, Mich. We quote for prompt delivery, delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, as follows:

Southern foundry No. 1	$15.75 to 16.25
Southern foundry No. 2	15.25 to 15.75
Southern foundry No. 3	14.75 to 15.25
Southern foundry No. 4	14.25 to 14.75
Southern No. 1 soft	15.75 to 16.25
Southern No. 2 soft	15.25 to 15.75
Southern gray forge	14.00 to 14.25
Northern No. 1 foundry	16.70 to 17.20
Northern No. 2 foundry	16.20 to 16.70
Northern No. 3 foundry	15.70 to 16.20
Northern 8 per cent silicon	19.70

Finished Material.—There has been a fairly good jobbing demand and a slight increase in mill business, and inquiry is better. Prices are unchanged. Small orders are filled here at the following quotations:

Iron and steel bars, 1.85c to 2c, full extras. Angles, 3 x 3 and over, 2.10c to 2.25c; beams and channels, 15 inches and under, 2.10c to 2.25c; small angles and architectural channels, 2c base; plates, ¼-inch and heavier, 2c; 3/16-inch, 2.10c; No. 8, 2.15c; sheets, blue annealed, No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; box annealed sheets, Nos. 18 and 20, 2.55c to 2.65c; Nos. 22 and 24, 2.65c to 2.75c; Nos. 25 and 26, 2.70c to 2.80c; No. 27, 2.75c to 2.85c; and No. 28, 2.85c to 2.95c; boiler tubes, 2¾ to 5 inches, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3c base; cold rolled shafting, 47 to 50 per cent off list; steel tire, 2.05c to 2.10c base.

Coke.—The feature of interest in the coke market is the purchasing by southern furnaces of Wise county and Pocohontas coke, due to the coal strike in that district. Wise county furnace coke has advanced to $1.90 to $2 at the ovens and it is apparently difficult to secure anything for September shipment under $2 in that district. Pocohontas coke is at a disadvantage in freight rates, but has sold at $1.75 at the ovens; but asking prices are as high as $1.90 at the ovens. There is but little doing in contracts for either furnace or foundry coke. Quotations for prompt shipment in the leading producing districts are as follows:

	PER TON.
Wise county furnace coke	$2.00 to 2.10
Wise county foundry coke	2.10 to 2.25
Pocahontas furnace coke	1.75 to 1.85
Pocahontas foundry coke	2.00 to 2.25
Standard Connellsville furnace coke	1.75 to 1.80
Standard Connellsville foundry coke	2.00 to 2.25
Connellsville district furnace coke	1.60 to 1.65
Connellsville district foundry coke	2.00 to 2.25

Old Material.—Prices are without change and dealers are holding firmly to quotations. The demand from melters is moderate. Dealers' prices to consumers are as follows:

Old No. 1 R. R. wrought, net tons	$11.50 to 12.50
Cast machine and fdy., net tons	12.00 to 12.50
Old iron rails, gross tons	14.00 to 14.50
Old steel rails (re-rolling) gross tons	13.25 to 13.75
Old short lengths, gross tons	12.50 to 13.00
Old iron axles, net tons	16.00 to 16.50
Heavy melting scrap, gross tons	12.50 to 13.00
Stove plate, net tons	10.00 to 10.50
Wrought turnings	5.50 to 6.50
Cast borings, net tons	4.50 to 5.00
Car wheels, gross tons	13.50 to 14.50

NEW YORK.

Pig Iron Market Quiet—Considerable Business Pending.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Aug. 18.

Pig Iron.—While the eastern market has lost some of the snap exhibited a week ago and current transactions are considerably less extensive, there is still a very fair tonnage involved in inquiries now pending. A large melter in New England is in the market for 5,000 tons of basic, a pipe interest which took on a lot of 5,000 tons some 10 days ago has tentative inquiries out for as much as 10,000 tons, another pipe manufacturer in this district is figuring on 2,000 tons and scattered inquiries by concerns along the Hudson and further up the state aggregate at least 5,000 tons additional. In all, a conservative estimate of the iron now under negotiation is between 25,000 and 30,000 tons. The price level manifests no change. One selling interest which took on 1,500 tons in small lots last week sold nothing at less than the $16 basis. No important tonnages are reported among the sales of the week under review, though a few lots of from 500 to 1,200 tons were placed. Another Virginia stack has been blown in, but both Virginia and southern irons are barred from competitive business in this territory by the high asking prices. British cables report considerable buying of Middlesboro iron for American account, this being speculative business prompted by the low current level on these irons and the deplenished condition of stocks in that district. We quote, last half delivery at tidewater, as follows:

Northern foundry No. 1	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
No. 2 southern foundry	16.50 to 17.00
Malleable	17.50 to 18.00
Basic	15.00 to 15.50
Gray forge	15.25 to 15.75

Ferro-Alloys.—The inquiry of a large western steel works, noted a week ago, for 1,500 tons of ferro-manganese for delivery in 1909 has not been closed, the consumer finding no one willing to take the order for such advanced delivery at the present level, $64, seaboard. An eastern steel plant is willing to purchase 1,800 tons for next year, if this price can be secured. An inquiry is also current for 250 tons for spot delivery. Ferro-silicon sales of the past week have aggregated about 100 tons, the price continuing at $69, Pittsburg, for 50 per cent. An inquiry is out for a carload of spiegeleisen (20 per cent manganese) on which prompt shipment is specified.

Finished Materials.—Announcement is made that the Baltimore & Ohio will shortly begin work on abolishing about 50 grade crossings in Baltimore, which will mean the elevation of several miles of tracks and an ultimate expenditure of $7,000,000. Considerable grade crossing elimination work is also involved in the 4,600 tons of steel on which the Long Island railroad will receive bids up to Aug. 25, the balance being for use in the Montauk and Glendale cutoffs. The Erie is in the market for two small bridges, the Grand Trunk for 1,000 tons of bridge materials and two southern roads are expected to purchase about 9,000 tons in the near future. The McClintic-Marshall Construction Co. has taken about 265 tons of bridge materials for the B. & O., W. & L. E. and New York Central; the Louisville Bridge Co., 200 tons for the L. & N.; the Pennsylvania Steel Co., 265 tons for the Alabama and Great Southern, and the Virginia Railway; the American Bridge Co., 70 tons for the Bessemer & Lake Erie; and independent interests have secured 370 tons for the Lake Superior & Ishpeming, and 265 for the Burlington. Bids close Sept. 1 on the 45,000 tons of 80-pound sections for the Trans-Continental Railway, Ontario. The Lackawanna Railroad is in the market for about 400 tons of light rails for its coal properties.

Structural lettings have been extremely few, the only one of importance being a 300-ton building at Reading, taken by the American Bridge Co. The 2,000-ton mercantile building at Portland, Ore., reported last week as let to this interest, has not yet been placed; the Thompson-Starrett Co. has the general contract. Bids close Saturday on a municipal building at Trenton, requiring 400 tons. A considerable part of the big structural tonnage pending in this city and district may be let at any time. The Amityville water project, involving a large amount of plates, is not yet decided.

The Warren Fdy. & Machine Co. has taken the contract for 200 tons of 12-inch cast iron pipe for Meriden, Conn. New York opens bids Wednesday on 1,000 tons of 6 and 12-inch, and a week later Brooklyn will buy 1,800 tons of 8 and 12-inch. Wallingford, Conn., will receive bids up to Aug. 31 on 200 tons of 8 and 10-inch pipe. Springfield, Mass., is asking tenders on 12 miles of 42-inch pipe, either steel, wrought iron or cast iron, bids to close Sept. 9. We quote 6-inch pipe, carload lots, New York delivery, at $23.75, net ton.

Current plate business is light. Some few orders are reported in bar iron, better prices prevailing on superior grades of iron. In other lines, little change is to be noted, and we quote: Angles, 3 to 6 inches x ¼-inch and heavier, 1.76c; beams, 3 to 15 inches, 1.76c; tees, 3 x ¼-inch and heavier, 1.81c; plates, carloads, tanks, 1.76c; marine boilers, 2.16c; bar iron, 1.46c; soft steel bars, 1.56c; sheets, No. 28, black, 2.66c.

Old Materials.—The railway lists for August have been placed at a somewhat higher level than prevailed a month ago, though it is understood that the tenders made on a large quantity of old rails—two eastern roads offering 3,000 tons each—were not considered sufficiently attractive and were refused. Business is still light, being confined to small lots, but inquiry shows some improvement. Old car wheels and steel axles are higher. Stove plate has advanced sharply and wrought pipe is up slightly. We quote, gross tons, New York delivery, as follows:

Old iron rails	$14.50 to 15.00
Old steel rails, re-rolling	14.00 to 14.50
Relaying rails	20.00 to 21.00
Old car wheels	12.50 to 13.00
Old iron car axles	17.50 to 18.00
Old steel car axles	16.50 to 17.00
Heavy melting steel	12.00 to 12.50
No. 1 railroad wrought	14.00 to 14.50
Iron track scrap	12.50 to 13.00
Wrought pipe	10.50 to 11.00
Cast borings	6.50 to 7.00
Wrought turnings	8.50 to 9.00
Heavy cast scrap	12.50 to 13.00
Railroad malleable	10.00 to 10.50
Stove plate	10.50 to 11.00
Grate bars	9.50 to 10.00

PHILADELPHIA.

Slow but Steady Improvement in Pig Iron—Good Demand for Plates.

Office of THE IRON TRADE REVIEW,
408 Central Trust Bldg., Aug. 18.

Pig Iron.—A steady run of moderate-sized orders, with numerous inquiries for the fourth quarter and some even extending into 1909, marks the slow but steady progress of the market toward more active conditions. That the basis for the improvement is substantial is shown by the reports of increasing business in foundries and among other consumers of iron. No notably large orders have been reported during the past week, but the pipe makers continue to buy in good amounts whenever they find prices to suit them, and one large Philadelphia establishment is in the market for 5,000 tons of basic. Producers' stocks on hand are rapidly being depleted, and with many the demand now considerably exceeds the daily output. As a consequence, the Thomas Iron Co., which for some weeks has had only one of its nine furnaces in blast, expects to blow in a second one on basic in a few days. Southern irons have strengthened somewhat in price, greatly to the advantage of northern furnaces. As a result of this better feeling and the steadily brightening prospects, prices hold firmly, and the trend continues upward. Little change is noted from last week, and prices may be quoted as follows:

No. 1X foundry	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
Standard gray forge	15.25 to 15.50
Basic	15.25 to 15.50
Low phosphorus	21.00 to 21.50
No. 2 Birmingham	16.25 to 16.75
No. 2 Virginia	16.75 to 17.00

Finished Material.—Plates continue in good demand, largely because of the construction of new riveted pipe lines, and the Coatesville mills engaged in this line are running at about three-quarters capacity. There is also a fair run of moderate orders for structural material. As a rule, however, mills in this territory hardly average 50 per cent of their capacity. Prices show no change, as follows: Structural, 1.75c to 1.90c; steel plates, 1.75c to 1.80c; refined iron bars, 1.35c to 1.45c; steel bars, 1.55c.

Old Material.—The market is firm, with an advancing tendency. This is not due to any especially heavy orders, but to the fact that so little scrap has been produced during the present depression that the supply is comparatively scarce and any little demand sends prices up. Half a dozen lines show gains in the following quotations:

Old steel rails (re-rolling)	$16.50 to 17.00
No. 1 steel scrap	14.50 to 15.00
Old steel axles	19.00 to 20.00
Old iron axles	22.00 to 23.00
Old iron rails	19.50 to 20.00
Old car wheels	14.50 to 15.00
Choice scrap R. R. No. 1 wrought	17.00 to 17.50
No. 1 yard scrap	15.50 to 16.00
Machinery scrap	15.00 to 15.50
Low phosphorus scrap	18.50 to 19.00
Wrought iron pipe	13.50 to 14.00
No. 1 forge fire scrap	12.00 to 12.50
No. 2 forge fire scrap, ordinary	9.00 to 10.00
Wrought turnings	10.50 to 11.00
Axle turnings, heavy	12.00 to 12.50
Cast borings	9.25 to 9.75
Stove plates	12.00 to 12.50

BUFFALO.

Prices Less Ragged, But Buying is Not Very Active.

Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Aug. 18.

Pig Iron.—Market conditions are slightly improved, the tendency now being toward firmer quotations. The market is less ragged, and, while prices are still approximated, they are not as uncertain as they were earlier in the season. The general feeling is that of confidence, but the consumers are conservative and buying is light. Most of the business done is for small tonnage. A few of the larger consumers have been in the market for prices in a general way and while they indicate a desire to place orders, they seem ready to wait for a few weeks before making contracts.

Valley iron is quiet. There were a few substantial inquiries the past week, but the actual business was light. There appears to be no discontent so far as outlook is concerned, but early activity in the market is not expected. Prices remain unchanged, but the valley furnace men say the quotations are settling down into better shape. We quote f. o. b. Buffalo as follows:

No. IX foundry	$16.00 to 16.50
No. 2X foundry	15.50 to 16.00
No. 2 plain	15.00 to 15.50
No. 3 foundry	15.00 to 15.50
Malleable Bessemer	16.00 to 17.30
Gray forge	14.75 to 15.25
Charcoal	20.25 to 20.75

Finished Products.—Local architects will build the Providence Retreat at Milwaukee. Bids are now being submitted on 1,200 tons of structural steel for that building. It will be erected under the direction of a local church society which built the institution known as the Providence Retreat in this city.

Business has been generally dull in finished material, although the outlook is still reported as growing better. No contracts of importantce were let the past week.

ST. LOUIS.

Low Pig Iron Prices Disappear—Sale of Basic—Structural Improves.

Aug. 17.

Pig Iron.—Dealers in the St. Louis territory seem to be of the opinion that the price of $12 for No. 2 iron, Birmingham, has entirely disappeared from this market, and $12.50 is the lowest quotation obtainable for first class No. 2 product, with $13 being not infrequent. Inquiries were quite numerous last week and today, and some good orders were booked near the close of the week. A sale of 3,000 tons of basic iron was reported by one firm Friday, with fair prospects that it would be increased to 5,000 tons today or tomorrow. This was made to one of the largest St. Louis foundries, but the price was withheld. One lot of 2,000 tons low sulphur iron was sold.

Good crops in the south, now practically assured, and the miners' strike in the Birmingham district, curtailing the production of No. 1 and No. 2 grades, are assigned as reasons for the advance in quotations. Our prices delivered, to which the Birmingham freight of $3.75 has been added, follow:

No. 1 southern	$16.75 to 17.25
No. 2 southern	16.25 to 16.75
No. 3 southern	15.75 to 16.25
No. 4 southern	15.25 to 15.75

Coke.—The coke market remains unchanged in prices from last week's report. Inquiries are good, and some orders are being placed.

Finished Material.—The market for structural iron evinces considerable improvement. It is believed that bids will be asked within the next 30 days for the new library, entailing tbout $130,000 worth of structural iron; the new insane asylum, about $100,000; the municipal building, about $120,000; and the city hospital, about $100,000. St. Louis contractors have also been asked to bid on two new buildings proposed for Birmingham, two at San Antonio, Tex., one at Houston, Tex., and one at Springfield, Ill.

Old Material.—The market is about the same with quotations as follows:

Cast iron borings, free from foreign material, net ton	$ 5.50
Steel axle turnings, net ton	8.50
Steel railroad axles, net ton	$17.50 to 18.50
Iron railroad axles, net ton	18.50 to 19.50
Miscellaneous steel scrap, gross ton	10.25
Old car wheels, gross ton	14.50 to 15.00
No. 1 railroad cast scrap, net ton	12.00 to 12.50
Heavy machinery cast, net ton	13.00
Stove plate and light cast, net ton	9.50
Sheet iron, net tons, uncut	4.00
No. 1 railroad wrought, net ton	10.50 to 11.00
Railroad malleable, net ton	11.50
Heavy melting steel, net ton	11.50

BIRMINGHAM, ALA.

Tennessee Rolling Mills Resume—Some Improvement in Pig Iron.

Aug. 17.

The pig iron market in the southern territory continues to show some improvement. No. 2 foundry iron is being quoted at $12.50 per ton and some of the furnacemen intimate that $13 per ton iron will be possible in the next few days. The resumption of operations at the second Ironaton furnace of the Alabama Consolidated Coal & Iron Co. was a feature of the past week and the make in this district has been improved about 200 to 250 tons a day. While the coal miners' strike continues to give a little trouble, enough coal and coke is being brought into the district from elsewhere to add to what is being produced at home, so that there will be no interference with the pig iron production.

The rolling mills of the Tennessee Coal, Iron & Railroad Co. at Bessemer, 12 miles from Birmingham, will resume operation Wednesday and 300 men at least will be given employment. The mills have been idle two or three weeks by reason of the short supply of coal and steel. Conditions in both commodities have improved lately.

The big steel plant of the Tennessee company at Ensley is doing exceptionally well. The production in all departments is strong. The steel rail output for 24 hours during the past week went to 1,504 tons, the record for one day since the plant has been erected. Other heavy production at this plant was announced for the past week and the officials were so elated that cigars were distributed to the employes as a little expression of appreciation for the effort given.

A better trade is noted among stove foundries in this state. Other foundries are doing a little better. The cast iron pipe plants are not bothered much by anything and appear to be shipping their product in steady lots, with plenty of orders in hand or in sight.

BRITISH IRON MARKET.

Stronger Tone in Nearly All Markets, But Quiet Continues.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Aug. 8.

Though trade continues quiet, there is a somewhat stronger tone in nearly all the markets. Yesterday's quotation for Cleveland of 51s 1½d ($12.51) shows an advance on the week of about 1 shilling, which is very different from the previous weeks which have yielded nothing but reductions. This rise in price has taken place whilst every circumstance pointed to depression, and with a small amount of business being transacted at Middlesbrough. Northamptonshire and Lincolnshire pig iron are both cheaper than the Cleveland article. The sale of hematite pig iron on the East Coast is more restricted and notwithstanding a reduction in the amount produced, the downward movement in prices continues. It was anticipated that the blowing out of

furnaces last week would have arrested the slump. It is usual for the price of hematite to be about 10s dearer than the Cleveland article, but this relationship has not been maintained, the East Coast product selling at only 5s more than the Cleveland. Locally trade reflects the prevailing conditions in other larger centers, and last week's meeting of the iron trade was pervaded with a more optimistic tone than for several weeks past. Despite the holiday, smelters' stocks did not materially increase, owing to the fact that they had sufficient orders to absorb their output during the shut down of other works. It is anticipated that there will be a brisk autumn trade.

About 1,200 men employed at the works of the Patent Shaft & Axle Tree Co., Wednesbury, have gone on a strike on account of the discharge of one of the employes. The men state that they will not resume work until the discharged employe is reinstated and the services of the under manager, Mr. Gwyatt, are dispensed with.

Following upon a reduction in merchant bars of 10s per ton a few weeks ago, the South Yorkshire Bar Iron Association has now decided to reduce their quotations for hoops by 10s, the present price being £7. As the former reduction was followed by a fair number of orders, increased business is anticipated as a result of this latest decision.

Messrs. Baldwin may erect at an expenditure of £100,000 some new works at Gowerton, South Wales, which will comprise 24 sheet and tin plate mills. These will provide employment for 1,000 hands. Though no official confirmation is forthcoming, the rumor is not absolutely denied.

METAL MARKET

CHICAGO.

Chicago, Aug. 19—While local buying of copper was in fair volume, the lack of sufficient trading in the eastern market to support the price influenced a decline of ¼ cent a pound in this market also.

Lead and spelter also are dull, but prices are unchanged. Quotations on old metals remain as a week ago, without change. The movement has been limited and demand is quiet.

NEW YORK.

Aug. 18.

Copper.—Developments of the past few days have indicated strongly that the extraordinary spurt of activity reported a week ago was setting too fast a pace to continue. Very little business is now being done and, while prices are as yet close to the high level set during the movement, the situation is weaker and moderate declines are expected. We quote: Lake, 13¾c to 14c; electrolytic, 13⅝c to 13⅞c; casting, 13⅜c to 13⅝c.

Pig Tin.—An almost unprecedented drop in the London market Monday, coupled with the absence of inquiry on this side of the water, sent prices down rapidly. Spot metal is now more plentiful. We quote, New York delivery, 29c to 29.75c.

Pig Lead.—With a fair volume of business, prices have held their own during the week and are still quotable at 4.57½c to 4.62½c, New York.

Spelter.—Business is light, but prices are unchanged on the level of 4.70c to 4.75c, New York.

Antimony.—Cookson's, 8½c; Hallett's, 8¾c; ordinary brands, 7c to 8¼c.

ST. LOUIS.

Aug. 17.

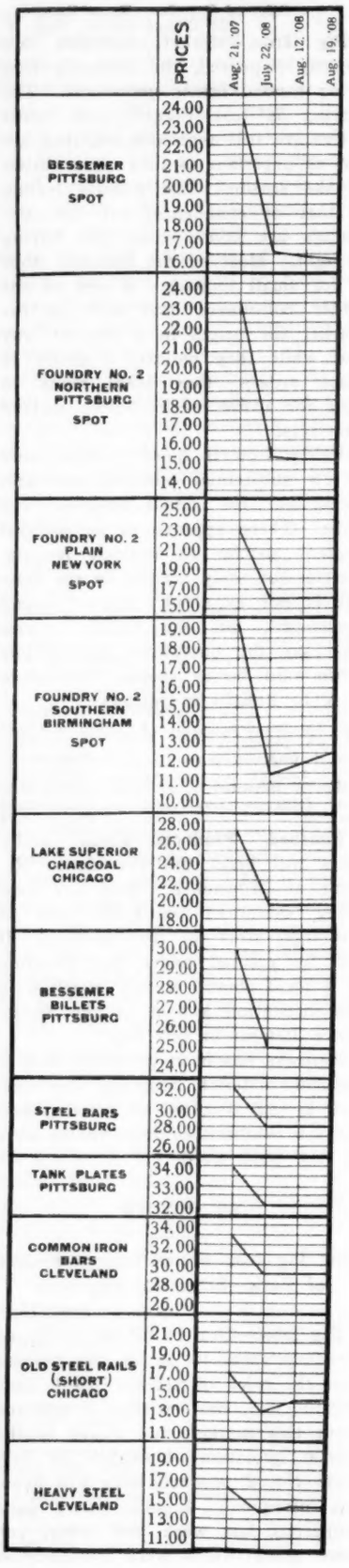
Lead and Zinc.—There was strong upward tendency for ore in the Joplin district last week, especially for zinc ore, with varying demand and a somewhat fluctuating market. Sales made during the latter part of the week were at lower figures than prevailed during the middle of the week. Some zinc ores sold as low as $35 base, and the highest price paid was $39.50 for 60 per cent ore. The base price seemed to depend more or less upon the quantity of available ore, the more ore in the bins the higher the base price.

Shipments were heavy during the week because of the shipment during the previous week of 1,000 tons of Yellow Dog ore in the Webb City district for last week's delivery. Reports say that the big sale was made at $36 or $36.50 base price.

Lead ore was strong during the entire week with an average price of $61 a ton, the highest being $63 and the lowest $59. Shipments of lead also were quite heavy.

Brown & Co., Wayne Iron Works, Pittsburg; Granite Iron Rolling Mills, St. Louis; Pope Tin Plate Co., Steubenville, O.; Ewald Iron Co., Louisville; and Standard Chain Co., Columbus, O., are among the latest signers of the 1908-09 wage scale of the Amalgamated Association of Iron, Steel & Tin Workers.

PRICE CHART.



CONCRETE SHAFT

Will Be Sunk at New Mesabi Mine—Mining Notes.

Work is about to be started in the opening of the deposit in section 11, 57-21, near Hibbing, Minn., recently leased by the Tod-Stambaugh Co., Cleveland. The location is pretty wet, and the surface approximates 200 feet in depth. It has been decided, therefore, that a concrete shaft is advisable. The Tod-Stambaugh Co. has commissioned John W. Seaver, engineer, Caxton building, Cleveland, to prepare plans for opening and completely equipping the mine. The contract with Mr. Seaver provides that the equipment, including the tram system and surface work, shall be modern in every respect.

The work of surface development has been begun and the contract let for the casing, which will be 21 feet in diameter, of reinforced concrete, to the Foundation Co., of New York, builder of the Syracuse, Bangor and Smith shafts. The company's representatives are on the ground, preparing to start work. The power plant will include six 150-horsepower boilers, electrical generators, air compressors, steam hoisting engines, etc. The further plant equipment will include boiler service pumps and tank, steel shaft house, bins, automatic skips, sheaves, and a complete tramming system with locomotives and cars and special ore handling equipment in the mine. The ore will probably be handled out of the mine from a 250-foot level, although provision is made for driving the mine to a depth of 400 feet. Plans have been made, however, so that the shaft may eventually be sunk to any desired level.

It is estimated that the contracts, while being let from time to time, will not all have been awarded until possibly six months. The mine equipment, it is expected, will be placed in actual operation in about a year. The deposit contains between 6,000,000 and 7,000,000 tons of ore, a large proportion of which is of Bessemer grade.

A complete resumption of work at the Bristol mine at Crystal Falls, operated by Oglebay, Norton & Co., has been ordered, and shipments both from stock pile and shaft will go forward on normal schedule as soon as the working force is again thoroughly organized.

The stripping of the Silver property at Virginia by Butler Bros. for the Consumers Ore Co., is now far enough along to have reached ore. Considering the difficulties of stripping this piece, covered as it is in part by waste stripping from the Sauntry-Alpena mine adjoining and cramped naturally by its shape, this is very good progress. The development of this property is interesting in view of the many years of litigation during which the question of ownership was involved.

STEADY IMPROVEMENT

In the Cincinnati Machinery Market—Little Railroad Business.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Aug. 18.

While business is still far below normal, there are indications of steady improvement. Several shops report July the best month experienced since the depression and the first half of August has not fallen below the July record. There is but little railroad business represented in the buying. The orders seem to cover all classes of machinery. Considerable engine work is being figured on in the Chicago territory. Woodworking lines are receiving a better line of inquiry and more orders. Southern representatives of woodworking machinery manufacturers report the outlook better in the south. There is considerable gear cutting work in hand and this branch of special work is more active than it has been for months. Foreign business is still quiet and the export business is not looking up as well as the domestic. There seems to be considerable business in special machines and the orders for stock sizes are not so plentiful as for special sizes.

As heretofore announced in THE IRON TRADE REVIEW, the next meeting of the National Machine Tool Builders' Association is to be held in New York Oct. 20 and 21, at the Imperial Hotel. It is announced that many important subjects will be up for discussion and further reports on the cost keeping system will be heard. It is not unlikely that the matter of holding foreign trade will also be one of the subjects to be discussed, as a number of our local machine tool builders have been abroad this summer and some are abroad now. This subject furnishes an important topic and one of much interest to the trade.

Suit has been brought in United States court at Trenton, N. J., by William J. Blauvelt, trustee, for permission to foreclose a mortgage of $2,5000,000 on the plant of the Passaic Steel Co., Paterson, N. J.

TWELVE THOUSAND CARS

Will Probably Soon be Ordered by Railroad Companies.

At the present time it looks as if some 12,000 cars, including 7,000 for the Harriman lines, would be ordered for the near future, and while prices are frequently asked for a large amount of equipment which is not contracted for, there are indications that in this instance that the inquiries are bonafide and that the equipment is much needed. THE IRON TRADE REVIEW has been advised on good authority that prices have been asked for the following number of cars by the railroad corporations named:

300 cars for the D., L. & W.

2,550 cars for the Wisconsin Central.

275 cars for the Newburg & South Shore.

70 caboose cars for the Southern Pacific.

100 Isthmian Canal Commission ballast cars.

100 cars for the St. Louis & San Francisco R. R.

1,000 steel gondolas for the Chicago & Alton R. R.

7,000 cars for the Harriman railroad interests.

200 60,000-pound capacity box cars and 250 80,000-pound capacity coal cars for the Iowa Central.

500 Atlantic Coast Line steel underframe ventilated box cars, 60,000 pounds capacity.

When it is remembered that an order for a large number of cars means orders and specifications for steel, steel castings, bar iron, malleable iron castings, railroad specialties of various kinds, car wheels, lumber, and a large variety of material, it will readily be appreciated that this business affects a great many interests scattered throughout the country.

In addition to the foregoing, it is pretty generally understood that the railroad companies are making specifications for a large amount of repair equipment and are beginning to replace worn out equipment and material that has been sadly in need of repair for a good many months.

Orders For Locomotives. — The American Locomotive Co. has received an order for 10 ten-wheel freight locomotives for the Central Northern Railway of Argentine and 20 Pacific type passenger locomotives for the same road. The Montreal Locomotive Works, Ltd., has received an order for two consolidation (2-8-0 type) freight locomotives for the Eastern British Columbia Railway Co.

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JUST RAILROAD RATES.

That a day of better principles and practices, a day of greater respect for law and public opinion, is dawning in the business world is shown in many ways, and particularly at the present time by the manner in which the readjustment of railroad rates is being carried out. Railroad interests are not only showing a determination to conform to the laws of the nation and the states, but are also seeking the advice of shippers and business men in general to an unprecedented extent. In some cases, after thorough consideration, new rates have been announced, and they are so reasonable that shippers have not protested. Among other manufacturers who have been affected by the new rates, are makers of iron and steel products, who have cheerfully concurred, although recent decisions to advance freight rates or increase minimum car loads will cost them many thousands of dollars.

We take pleasure in publishing in this issue a letter from Samuel Mather, in which he dissents from some of the statements made in an editorial published in these columns July 30. In that editorial, we distinctly stated that some rates ought to be increased, and on the main question involved we agree with Mr. Mather and we fully realize that the financial inability of railroads to purchase rails and rolling stock is being felt even more extensively than Mr. Mather indicates. It is likewise true that the re-establishing of the credit of the railroads and the renewing of their normal purchases would benefit many kinds of manufacturers and dealers directly and thousands of others indirectly. We still desire, however, to emphasize the fact that a thorough investigation should be made to determine the actual facts in every case, and we are of the opinion that, in the cases of all railroads which have been guilty of reprehensible practices, their claims for increasing freight rates should be scrutinized with great caution. If it is necessary to increase the rates in order to pay dividends on watered stock, the advances should not be granted. If, as Mr. Mather suggests, "the bad roads would be overwhelmed with traffic at the lower rate," they would not find the carrying of the traffic profitable if, as claimed, the rates are too low to pay costs and meet necessary expenditures for equipment. Receiverships for some of these "bad roads" might be more desirable than to permit them to charge unjust rates.

In a notable interview, published a few days ago, Mr. Harriman stated that the American people ought to be willing to pay the railroads "a proper compensation for a proper transportation service, such a service as they are now performing and for which they are not receiving an adequate return." He declared, however, that he is not in favor of a horizontal increase in rates. "I am not a traffic man," said Mr. Harriman, "and I do not know much about such things, but I know there is a bungling way to go about a thing and there is a proper and businesslike way to do it. That the railroads should get more revenue for the service they are performing is my belief, but this should be brought about in the proper manner." Mr. Harriman seemed to favor a readjustment of the rates rather than a general increase. Apparently, it is his opinion that there are many rates which are too low and which should be raised, but he is opposed to placing a straight 10 per cent increase on the transportation charges upon all commodities, as has been proposed by some railroad men. When asked whether the present time is opportune to increase freight rates, Mr. Harriman replied, "All times are opportune to do what is right."

We agree with Mr. Harriman and believe that his position is impregnable. If, however, the railroads continue their present policy of showing respect for the law and for the advice of shippers, there will be no danger of the bungling which Mr. Harriman fears.

REPUBLIC COMPANY'S GOOD SHOWING.

The annual report of the Republic Iron & Steel Co., covering the fiscal year ended June 30 last, makes an excellent showing, considering the conditions. The fiscal year covered four months of great activity and eight months of panic or depression, so that on the whole the report is one of a year of adverse conditions. The company's output for sale comprises southern pig iron, iron mill products and steel products. These products, unlike the great bulk of the products of other steel companies, underwent a very material shrinkage in price during the fiscal year. Southern pig iron had begun to decline before the fiscal year started, and declined uninterruptedly during the greater part of the fiscal year. It declined $8 a ton during the first half of the fiscal year, being $21, Birmingham, on July 1 and $13 on Dec. 31. Iron bars declined $6 during the fiscal year, the bi-monthly settlement for July and August, 1907, being 1.65c and the settlement for May and June, 1908, being 1.35c. Some of the company's steel products also declined, railroad spikes undergoing a

heavy decline and sheet bars a slight decline.

With these material decreases in realized prices, and with a decrease in the total tonnage of 46 per cent, there was a decrease of only 40 per cent in the total volume of sales, and a decrease of only 34 per cent in gross profits realized before the deductions for maintenance and repairs. These figures invite analysis, as, other things being equal, the lower prices should make a greater decrease in the volume of sales than there was in the tonnage. The missing factor is evidently the greater average degree of finish to which the company carried its output whereby a lesser proportion of crude and a larger proportion of finished material was produced, so that a tonnage 54 per cent as large as in the preceding fiscal year, at slightly lower market prices, produced total sales 60 per cent as large as in the previous year.

A further favorable feature of the showing is the fact that the gross profits, before deduction for maintenance and repairs, showed a decrease of only 34 per cent, while gross sales decreased 40 per cent. This change, it is pointed out by the management, is due in part to greater efficiency on the part of labor, and to general retrenchment, but in greater part to the better physical condition of the properties and to the general operation being more self contained.

The company has evidently been liberal in its charges for maintenance and repairs and for depreciation, since these charges, together with interest on bonds and other interest and discount charges, show a diminution of less than 16 per cent from the previous year, despite the large decrease in tonnage. It resulted that the balance left for preferred dividends was $1,971,420, or 47 per cent less than in the previous year. This was about 38 per cent in excess of the sum needed to pay the full preferred dividend for the year. On account of a provision in the general mortgage requiring the net quick assets to be maintained above a certain figure, it was deemed wise to pass the last quarterly dividend on the preferred stock.

At the end of this last fiscal year, the Republic Iron & Steel Co. was nine years and two months old. The most striking feature of its career has easily been the energy with which opportunities to improve its position have been embraced. As originally constituted, the company was little more than the consolidation of a couple score of rolling mills, a number of them being fit subjects for dismantling. Money was spent for improvements as rapidly as earned, and sometimes more rapidly, but it was well spent, and earnings from the new plants have been available much earlier than would have been the case if a less energetic policy had been pursued. It is rare for a public stock company so wisely to carry on and so successfully to emerge from such a financial struggle.

SOUTHERN CITIZENS DEMAND LAW ENFORCEMENT.

Following the committing of numerous outrages by union laborers and their sympathizers in the vicinity of Birmingham, Ala., in connection with the strike of coal miners, the people of that city have taken a firm stand in favor of the enforcement of the law and against all forms of anarchy and lawlessness. At a recent meeting in Birmingham of 3,000 people, at which not a mine owner or a miner appeared among the speakers, ex-Congressman Bowie declared that it was not a question of high or low wages, but a question of "whether we are bond or free, whether we shall stand up for the men who say they are ready to work or shall condone those who say, 'You shall not work unless you bow the knee to our organization.'" Similar sentiments were expressed by other speakers, and finally, resolutions were adopted with enthusiasm. These resolutions recited at some length the murders and other outrages committed, thanked the governor of the state and the sheriff for their efforts to suppress lawlessness, and offered the assistance of citizens in restoring peace and quiet in the county. The resolutions concluded with these two important paragraphs:

Every man who wants to work must be given the utmost protection against violence or intimidation, and we call upon the officers of the law and all good citizens to see to it that those who wish to work are protected in their God-given as well as constitutional right to earn a livelihood for themselves and families.

God being willing, if human effort can accomplish it, we will rescue this county from the dominion of murderers, assassins, lynchers and dynamiters.

That is sound doctrine that cannot be preached too earnestly in any section of the country. Whether lawlessness be due to race hatred, hatred of non-union men, or any other cause, it must not be tolerated.

THE PROPOSED ADVANCE IN FREIGHT RATES.

Editor IRON TRADE REVIEW:

The editorial article in your edition of July 30, entitled "Square Deal First—Higher Rates May Follow", is a very excellent one; I have read it with much interest. As you so truly say, "Certainly no one in the iron business whose prosperity depends to a large extent on that of the railroad, favors any policy that is unfair to them."

Because railroads are unable to buy rails, locomotives or cars, steel and iron plants manufacturing these articles are shut down; blast furnaces, plate mills and structural mills are unable to dispose of their product to the manufacturers of rails, locomotives or cars and are in a large measure shut down also, except to supply such demand as comes from foundries; and iron ore mines, coal mines, coke works and limestone quarries are similarly and directly affected. Hundreds of thousands of laboring men are consequently out of employment because the railroads, with diminished business and greatly increased expenses, are not earning money enough to spend for needed new construction and improvement, and, because of their lack of earning power, cannot command credit from bankers and capitalists, and therefore cannot borrow money to put into these needed improvements.

Surely, however, it is not the people

in the iron and steel business alone who are suffering. The stockholders of these railroads are our fellow citizens, and are to be found in large numbers in every state and territory in the Union. Their dividends, and the coupons of some of them, are in danger. I do not see how we can get away from the conclusion reached by Vice President Brown of the New York Central Lines in his address delivered at the annual banquet of the Michigan Manufacturers' Association in Detroit, June 22, that either higher freight rates, or radical decreases in expenditures, are necessary to enable the railroads to again enter upon the necessary policy of extensions, improvements and renewals to meet the constantly increasing demands upon them of our rapidly growing country.

It is true that "some" railroads,—your editorial says "many"—have resorted in the past to reprehensible practices; but is it wise for us to punish the many for the sins of the few, especially when such punishment reacts directly upon the prosperity of the entire country? How would it be possible to permit roads that had been honestly conducted, to increase their rates, without permitting any such necessary increase in the rates of their competitors? Would not the "bad" roads be overwhelmed with traffic at the lower rate, and the "good" roads lose business that belonged to them?

Neither do I understand that any general or "sweeping advance" in freight rates is contemplated, but a moderate increase in railroad earnings absolutely must be secured to offset in some measure, the tremendous increase in cost of everything that railroads buy, and the equally large increase in the cost of labor; and I believe it can be secured so as not to cause any injury to either shipper or consumer, if made *general;* for in such event *all* shippers and consumers would still remain on the same basis as compared to each other. It is rebates and discrimination that have been the great evils in railroad management of the past, much greater than stock watering and stock jobbing. And it should be remembered, in simple justice to the railroads, that in all rebate cases there are two parties: the railroad that grants, and the shipper who receives, the rebate; and in most cases it has been the shipper who *demanded* the rebate on penalty of transferring his shipments to some other road. It does not matter so much to most of us, exactly *what* rates we pay, as, whether all others in our line of business pay the *same* rates.

The railroads of the United States have pushed on the development of the United States. They have attracted many of the ablest men in the United States into their management; it is only natural that large fortunes should have been made by some of them. Unless some such measure of success had been possible, such wonderful men would not have expended their remarkable energies and secured the amazing railroad development of these United States, which is the marvel of the world. We must be careful lest, in pruning this wonderful growth of its excrescences, we should destroy the growth itself. If railroads are to be prevented from profitable operation in the future, how can they be expected to continue to attract either capital or ability? There are still other opportunities for both, in this country, and if they are to have no opportunity in the railroad field, they will promptly desert it, with consequences disastrous.

SAMUEL MATHER.

Cleveland, Aug. 14, 1908.

MIDSUMMER CANADIAN STATISTICS.

The American Iron and Steel Association has received direct from the manufacturers complete statistics of the production of pig iron in Canada in the first six months of 1908.

Total Production.—The total production of all kinds of pig iron in the dominion in the first half of 1908 amounted to 307,062 gross tons, as compared with 311,046 tons in the last half of 1907, and 270,100 tons in the first half. This is a decrease of 3,984 tons as compared with the last of 1907, but an increase of 36,962 tons as compared with the first half. The following table gives the half-yearly production since 1905:

Periods.	1905.	1906.	1907.	1908.
First half.....	210,206	282,010	270,100	307,062
Second half....	257,797	259,947	311,046	.....
Total	468,003	541,957	581,146	.....

Classified Production.—The production of Bessemer pig iron in the first half of 1908 amounted to 60,225 tons, against 81,887 tons in the last half of 1907 and 73,023 tons in the first half of that year. This is a decrease of 21,662 tons as compared with the last half and of 12,798 tons as compared with the first half of 1907.

The production of basic pig iron in the first half of 1908 amounted to 195,209 tons, against 179,854 tons in the last half of 1907 and 161,403 tons in the first half. This is an increase of 15,355 tons over the last half of 1907 and of 33,806 tons over the first half.

The production of malleable Bessemer, foundry, forge, ferro-silicon, and other grades of pig iron not enumerated above in the first half of 1908 amounted to 51,628 tons, against 49,305 tons in the last half of 1907 and 35,674 tons in the first half.

Production by Fuels.—The production of bituminous pig iron in the first half of 1908 amounted to 301,673 tons, against 306,772 tons in the last half of 1907 and 265,253 tons in the first half. The charcoal pig iron made in the first half of 1908 amounted to 4,798 tons, as compared with 4,124 tons in the first half. In the first half of 1908 and in the second half of 1907 small quantities of ferro-silicon were made by electricity. This production is not included in the bituminous and charcoal figures given above.

Furnaces in Blast.—On June 30, 1908, Canada had 16 completed blast furnaces, of which seven were in blast and nine were idle. Of this total 13 were equipped to use coke and three to use charcoal. In addition three coke furnaces were partly erected on the same date, work on which was indefinitely suspended some time ago.

During the first half of 1908 the total number of furnaces in Canada actually in blast for the whole or a part of the period was 14, of which 11 used coke and three used charcoal. The number that were idle during the whole period was two—all coke.

Imports and Exports.—Canada annually imports considerable quantities of pig iron, especially pig iron suitable for the manufacture of Bessemer and basic open-hearth steel. In 1907 the exports of all kinds of pig iron to Canada from the United States alone amounted to 68,296 gross tons. Canada is also a large exporter of steel billets, slabs, etc., the United States alone importing 64,898 gross tons in 1907.

Building Progressing.—The reinforced concrete foundation for two new wire galvanizing mills being erected by the Youngstown Sheet & Tube Co., Youngstown, O., has been completed. A 2,500-horsepower engine is to be installed and the capacity of the rod and wire departments is to be doubled. One new pipe mill has been put in operation by the tube department, and a new lapweld mill will be started about Oct. 1. Estimate has been made that the last tube mill for the company will not be completed before Feb. 1, 1909.

LARGE LOSSES PREVENTED

By Friendly Co-operation—Report of the Republic Iron & Steel Co.

The annual report of the Republic Iron & Steel Co. for the fiscal year ending June 30, 1908, has just been published by Chairman John A. Topping of the board of directors. Remarking upon the income figures, Chairman Topping says:

"While normal earnings were realized during the first quarter of the fiscal year, subsequent periods were seriously affected by the October panic which caused complete paralysis of your business for a period of approximately two months. This condition was followed by a slow business recovery, beginning in January with a volume of shipments approximately 25 per cent of normal, the succeeding months showing a slow gain in volume to June, which month recorded a maximum tonnage 52 per cent of normal. While the volume of your business suffered seriously by the disordered condition of business generally, yet the iron and steel markets passed through the trying period of liquidation and readjustment in an orderly manner, due to the friendly co-operative efforts of the principal manufacturers, with the result that the large losses heretofore sustained during panic periods both by producers and consumers, were avoided. Notwithstanding the reduced volume of business, your manufacturing costs have not only been maintained but show reductions as compared with periods of normal operations; this favorable showing has been influenced somewhat by the greater efficiency of labor and by general retrenchment, but more largely due to the better physical condition of your properties and to a more nearly self-contained operation."

The amount absorbed for maintenance and repairs was $1,000,071; reconstruction, depreciation and extinguishment, $637,898.76. After providing for interest on bonds and other charges, there was appropriated for preferred stock dividends, $1,071,887.25, leaving a balance due on dividend account for the year of $357,295.75. If the full dividend had been paid, the net surplus over dividends, depreciation and extinguishment requirements would have been $542,237.08. The actual amount carried to surplus, after deductions for dividends paid, depreciation and extinguishment requirements, was $899,532.83. On the recommendation of the executive committee, the board of directors deemed it wise to defer payment of the July 1 preferred quarterly dividend because a provision in the general mortgage requires that net assets shall be maintained at not less than $6,500,000, while the uncanceled amount of bonds is not less than that figure.

The income account and statement of surplus for the year ending June 30, 1908, is as follows:

		Decrease.
Net earnings	$3,948,514	$2,069,146
Improvements and repairs	1,000,071	99,929
Profits	2,948,443	1,969,217
Other income	98,176	11,906
Total profits	3,046,619	1,981,123
Deduction imp., etc.	637,899	196,435
Net profits	2,408,720	1,784,688
Charges	437,300	26,863
Available for dividend	1,971,420	1,757,825
Preferred dividend, 5¼	1,071,887	357,296
Surplus	899,533	1,400,520
Previous surplus	3,799,994	*666,710
Total surplus	4,699,527	733,819

*Increase.

The balance sheet as of June 30 is as follows:

ASSETS.

Real estate, plants, machinery, etc.	$53,092,152
New construction	906,036
Cash	667,963
Redemption 5 per cent gold notes	2,895
Stocks in other companies	863,335
Raw and finished material	4,547,999
Ore contract payments	800,906
Accounts and bills receivable	2,368,248
Prepaid mine royalties	715,293
Total	$63,964,830

LIABILITIES.

Preferred stock	$20,416,900
Common stock	27,191,600
First mortgage bonds	8,546,000
Potter ore bonds	345,000
Accounts and bills payable	1,362,025
Accrued interest	106,825
Accrued taxes	103,365
Depleted reserve on coal lands	706,737
Reserve—taxes and insurance	237,812
Contingent reserve	95,849
Furnace reserve	54,707
Ore contract balances	96,335
Unpaid dividends	2,745
Surplus	4,699,556
Total	$63,964,830

The inventories of material on hand as of June 30, 1908, was $4,547,999.20, compared with June 30, 1907, $4,278,-143.05, and as of June 30, 1906, $3,693,-404.95. The gross volume of sales for the year ending June 30, 1908, was $18,693,881.80, compared with the previous year, $31,227,423.56, and for the year ending June 30, 1906, $26,-196,438.85.

The additions to the property account during the year aggregated $837,142.71. The distribution of total expenditures to date June 30, 1908, are $12,090,677.87, distributed thus: To the northern district, $8,705,381.97, to the southern district, $3,385,295.90. The gross tons pig iron production for the year was 494,676, compared with 614,954 tons the previous year, and 493,344 tons in the year before that. The steel plant output in sheet bars, slabs, billets, etc., for the year was 303,328 tons, compared with 488,-251 tons the previous year and 454,859 tons ending June 30, 1906; and of ingots in these years, 341,985 tons, 546,645 tons and 511,768 tons. The finished production for the years above enumerated was: 434,230 tons in 1908, 804,360 tons in 1907 and 742,435 tons in 1906. The iron ore production, both north and south, aggregated 1,025,460 tons as of June 30, 1908, compared with 947,069 tons the previous year, and 970,106 tons in 1906. The ore reserves in gross tons are estimated thus: For the year ending June 30, 1908, 35,427,796 in the north, 88,683,439 in the south, or a total of 124,113,235, compared with a total of 120,598,300 for the previous year.

The coke production for 1908 and the two previous years was: 426,968 tons, compared with 521,561 tons and 343,485 tons. The company now owns both north and south a grand total of 1,548 ovens with an estimated capacity of 928,800 tons per annum. The coal reserves both north and south show a grand total of 198,815,-135 tons, of this 105,111,735 tons coking coal, and 93,703,400 tons steam coal. Aside from interests held in northern limestone quarries the company owns in fee simple two quarries in the south with estimated stone reserves of 31,546,800 gross tons.

The total number of men employed in the coal and ore mines, furnaces, works, etc., in the north was 5,895, compared with 10,679 the previous year and 9,065 in 1906. In the south for the same three years the number of men employed was 2,652, 3,216 and 2,600 in 1906. The grand total of men employed in 1908 was 8,547 compared with 13,895 the previous year and 11,665 in 1906. The total expended for labor in 1908 was $5,832,-631.62, compared with $8,686,604.58 the previous year and $7,735,902.92 in 1906.

The statement of unfilled orders follows: Finished and semi-finished products as of June 30, 1908, 283,743 tons, compared with 448,627 tons in 1907, and 377,349 tons in 1906; pig iron as of June 30, 1908, 59,196 tons, compared with 74,500 tons in 1907, and 74,607 tons in 1906. Remarking

COMPARATIVE STATEMENT OF EARNINGS AND DISPOSITION OF INCOME.

Period.	Gross Profits.	Depreciation and Charges.	Net Profits.	Regular Dividends.	Amount Carried to Surplus.	Amount Specially Written Out of Surplus.	Balance Surplus Account.
July 1, 1905, to June 30, 1906.	$4,750,476.09	$2,011,914.80	$2,738,561.22	$1,429,183.00	$1,309,378.22	$2,186,424.14	$3,133,283.73
July 1, 1906, to June 30, 1907.	6,127,741.84	2,398,496.44	3,729,245.40	1,429,183.00	2,300,062.40	1,633,352.00	3,799,994.13
July 1, 1907, to June 30, 1908.	4,046,689.84	2,075,269.76	1,971,420.08	1,071,887.25	899,532.83	.....	4,699,526.96

on this statement, Chairman Topping said: "Since the first of July, 1908, your order bookings have added substantially to the totals herein reported, so that your total bookings offer the most substantial hope that normal production will be realized within a reasonable period."

FIGURING ON LAKE VESSELS.

(Special Telegram.)

New York, Aug. 19.—The leading interest has sold 10,000 tons of structural materials to a Canadian concern.

Figures are being taken on two big lake freighters to be built this winter requiring nearly 5,000 tons of plates each.

No rail sales are reported, but inquiry is good, largely for export.

Corporation activities are slightly larger. Steel tonnage for Everitt House has been placed.

NEW ENGLAND FOUNDRYMEN'S ANNUAL OUTING.

Ninety-five members and guests of the New England Foundrymen's Association were in attendance at the annual outing of that organization held Aug. 14 at the beautiful Squantum Club, near Providence, R. I. A buffet luncheon in the club corridor followed the arrival of the party, many of whom motored down from Taunton, Boston and other points. In the afternoon, one of the famous Rhode Island clam bakes was served in the special dining room reserved for such events. The affair, which was one of the most successful in the history of the association, was directed by Messrs. Carpenter, Miller and Viall, all Providence members.

Proposed Tube Mill.—The plant of the Penn Shovel Mfg. Co., Warren, O., which has been in the hands of receivers for some months, has been purchased by Pittsburg capitalists who have been looking for a site for the location of a tube mill for some time. Among the new owners of the tube mill are Thomas M. Latimer, Mathias Slater and Major Joy. It is the intention to convert the rolling mill department into a tube mill, and to operate the shovel and handle plants secondary to that of the tube mill.

John F. Wenner has been appointed receiver for the Allentown Foundry & Machine Co., Allentown, Pa., on which liabilities are given as $155,500. This is one of the oldest industries in that section of the state, dating back to 1837.

OBITUARIES.

Francis H. Nye, for years identified with the business life of Syracuse, N. Y., and father of Francis H. Nye Jr., secretary-treasurer of the Eckels-Nye Steel Co., died Aug. 10, aged 86 years.

Daniel Haughey, who built the first steam fire engine used in Pittsburg, is dead in that city, aged 74 years. He was employed at the machine shops of James Rees & Sons for 50 years.

Henry Herrle, president of the United Foundry Co., of Cincinnati, died at his home in that city, Aug. 15, from the effects of poison taken with suicidal intent. Business reverses and failing eyesight were said to be the causes which led to the unfortunate act.

Richard S. Jones, manager of the Cannonsburg rolling mills, Cannonsburg, Pa., died at Brainard, Minn., Aug. 15, from injuries sustained in a wreck on the Northern Pacific railroad. Mr. Jones was about 60 years of age and was a well known mill operative in the Pittsburg district.

Edward H. Llewellyn, secretary of the Chicago Malleable Castings Co., died Sunday, Aug. 16, at the home of his brother, S. J. Llewellyn, Evanston, Ill. Mr. Llewellyn went abroad in April for his health and a rest, and was taken seriously ill July 3 at Frankfort-on-Main, Germany. He was brought home as hurriedly as possible, but died shortly after. He was born in Wales in 1855 and lived in Milwaukee for many years after coming to this country. Later on, he went to Chicago, where he had a position with the Jones & Laughlin Steel Co., but in 1899 he joined his brothers in the organizaton of the Chicago Malleable Castings Co., of which he has since been a director and secretary. He is survived by his brothers, Silas J., president of the Interstate Steel Co., and well known in iron and steel circles of Chicago and the west, and John T., who is vice president and treasurer of the Malleable company, and his sister, Mrs. Wentworth, of Milwaukee. He had never been married. His interment took place at Milwaukee, where the family lot is located.

The Rome furnace, at Rome, Ga., went into blast Aug. 3, on foundry iron. The brand is known as "Silver Creek." Rogers, Brown & Co., are sole agents.

Jefferson Furnace, Oak Hill, O. will go in blast on charcoal iron about Sept. 1.

PERSONAL.

Chas. E. Curtiss, manager of the Macbeth Iron Co., Cleveland, sailed Aug. 18 on the Kaiser Wilhelm II. for a short pleasure trip through Europe.

J. N. Sherer, who has been associated with Crocker Bros., New York City, for the past two years, has resigned his position to assume management of the Bellefont Furnace Co., Bellefont, Pa.

J. A. Galligan, for some time connected with Pickands, Brown & Co., at Milwaukee, pig iron and coke, has been appointed sales agent for the company in special charge of the coke sales with headquarters at Chicago.

W. C. Franz, of Charleston, W. Va., will assume his duties Sept. 1 as general manager of the Lake Superior Corporation and subsidiary companies. Until recently, Mr. Franz has been general manager of the Kanawha & West Virginia Railway Co.

Col. J. M. Schoonmaker, vice president of the Pittsburg & Lake Erie railroad, and other prominent Pittsburg men left Saturday as the guests of W. P. Snyder, on a trip in an ore boat from Cleveland to Duluth. Arriving at Duluth, the party will inspect the Mesabi ore fields.

A. R. Hunt, general manager of the Homestead works of the Carnegie Steel Co., was the guest of honor at a banquet given by the heads of the departments of the works at the Carnegie hotel, Munhall, Pa., Aug. 15, commemorating his 21 years' connection with the company. Mr. Hunt was made the recipient of a large silver loving cup, the presentation speech being made by J. S. Unger, assistant general manager.

GAYLEY DRY BLAST.

(Continued from first page.)

furnace, it has been repeatedly demonstrated that, by means of a uniform blast supply, great economies can be obtained through the establishment of uniformity in the furnace operations. In connection with the Bessemer process, a more uniform and certain quality of steel is secured with greater economy. In addition to the licenses referred to, a considerable number of additional installations are now being negotiated for, as it is understood that more advantageous terms can now be secured than will be possible later, and there are those in the industry who predict that it is only a question of time until this process will be considered a necessary part of the equipment of every blast furnace and Bessemer converter.

IN NEW QUARTERS.

Venus Novelty & Tool Co., Mt. Vernon, N. Y., Outgrows Old Accommodations.

The Venus Novelty & Tool Co. of Mt. Vernon, N. Y., recently incorporated under the laws of the state of New York for $25,000, has developed beyond the accommodations of its first quarters and has lately become permanently located at its new quarters, No. 120 South Railroad avenue, Mt. Vernon, N. Y. General sales office will be located in New York City.

This expansive concern is under the management of J. Henry Esser, president, an attorney of Mt. Vernon, and J. Everett Knapp, vice president and general superintendent, known for possessing mechanical aptitude and inventive tendencies, also a resident of Mt. Vernon. W. V. Baker, also of the same place, a designer and builder of special machines, etc., is superintendent of construction.

In order to meet the requirements of its active sales department, which is under the management of W. R. Casey, it will appropriate about 6,000 square feet of its floor space especially for the production of the "Venus laundry pad," something entirely new. The demand for this product has been so unexpectedly excessive as to place the productive branch of the concern completely in arrears, owing to the primary necessity of the development of special machinery and apparatus, which, however, is now about completed, and when fully installed will increase the weekly output to approximately 30,000.

This concern will also equip for the manufacture of several other articles which commercially speaking are in the same line as the above, and will ultimately conduct a general manufacturing business which will be necessary in order to produce the variety of articles which Mr. Knapp originated.

Big Purifying System.—The Youngstown Sheet & Tube Co., Youngstown, O., has contracted with Wm. B. Scaife & Sons Co., Pittsburg, for an addition to its present 15,000-horsepower softening and purifying system to provide for the 8,000-horsepower boilers which are being added for the operation of the new blast furnaces. The present water softening and purifying system is of the We-Fu-Go intermittent type, and consists of four large treating and settling tanks and four mechanical gravity filters. When the additional apparatus is installed, the system will consist of six large treating and settling tanks and seven mechanical gravity filters, and the total capacity will provide for 23,000-horsepower boilers, or 92,000 gallons of water per hour.

INDUSTRIAL SCHOOL

For Fitchburg, Mass., will Be Aided by Local Manufacturers.

Fitchburg, Mass., Aug. 17.—William B. Hunter, of Roslindale district, Boston, a graduate of the Massachusetts Institute of Technology, has been selected to take charge of the new department of industrial training established in this city by the school board, modeled upon the Cincinnati plan as described by Prof. Herman Schneider in an address delivered here several weeks ago.

The metal working concerns that will co-operate with the school committee in carrying out the plan are the Simonds Mfg. Co., Fitchburg Steam Engine Co., C. H. Brown Engine Co., Putnam Machine Co., Fitchburg Machine Works, C. H. Cowdrey Machine Co., and Bath Grinder Co. The course will extend over four years, the boy students will go to school and shop on alternate weeks, will be apprenticed and will receive wages for their services in the industrial plants.

Rebuilding Erie Foundry.—The general contract for rebuilding a part of the Erie Foundry Co.'s plant at Erie, Pa., badly damaged by fire recently, has been let to Henry Shenk, of Erie. According to plans drawn by the Osborn Engineering Co., Cleveland, the pattern shop will be of brick and steel construction, and the pattern storage house will be of fireproof construction throughout. The company will continue to use the old foundry, which with the power plant and a part of the machine shops were not badly damaged by fire. Further rebuilding will be done from time to time.

The new owners of the foundry at Fredericton, N. B., recently organized by the election of the following officers: President, Albert C. Smith; secretary, Harry A. Smith; manager, Percy G. Smith. It is the intention to conduct the business under the same name as before, McFarlane, Thompson & Anderson, and to improve the property as well as extend the business.

EARNINGS DECREASE.

Several Changes in Officers of National Enameling & Stamping Co.

The annual report of the National Enameling & Stamping Co. for the year ending June 30, 1908, recently submitted at the stockholders' meeting in Jersey City, shows a heavy decrease in earnings notwithstanding heavy reductions in expenditures. The profits were $301,822, compared with $1,703,400 in the preceding year, a decrease of $1,391,578. Allowing for fixed charges and preferred dividends, there was a deficit of $338,654, as compared with a surplus of $1,040,555 in the previous year. The total undivided profits on June 30 was $2,559,949. The income account for the year ending June 30, with comparison, is as follows:

	1908.	1907.	Decrease.
Profit .....$	311,822	$1,703,400	$1,391,578
Int. on gold bonds	52,214	64,583	12,369
Preferred div. .	598,262	598,262	12,369
Balance ....†$	338,654	$1,040,555	$1,379,209
Previous surplus	1,648,603	858,048	*790,555
Total surplus..$	1,309,949	$1,898,603	$ 588,654
Less amt. gen. res	250,000	250,000	.....
P. & L. surp.$	1,059,949	$1,648,603	$ 588,654

*Increase. †Deficit.

August Niedringhaus was elected a director to succeed the late William Niedringhaus. Other directors were re-elected. An advisory committee to the executive committee has been named, including George Niedringhaus and A. M. Steinhardt. F. G. Niedringhaus, formerly president, was chosen chairman of the directors, and F. A. W. Kieckhefer was elected president. Thomas K. Niedringhaus succeeds Mr. Kieckhefer as first vice president, and George W. Niedringhaus is second vice president. George V. Haggerty was elected a member of the executive committee, succeeding F. G. Niedringhaus.

Obermayer's Warehouse.—The constantly increasing trade of the S. Obermayer Co. in and around Erie, Pa., has made it necessary to open a branch warehouse in that city. W. L. Scott, well known to the foundry trade in that section, is in charge, and a full line of foundry facings, core compounds, plumbago and blackings will be carried for the present; and, just as soon as conditions warrant doing so, a complete line of other foundry supplies manufactured by the company will be carried in stock there.

The Chicago & Alton railroad is in the market for 1,000 steel gondola cars.

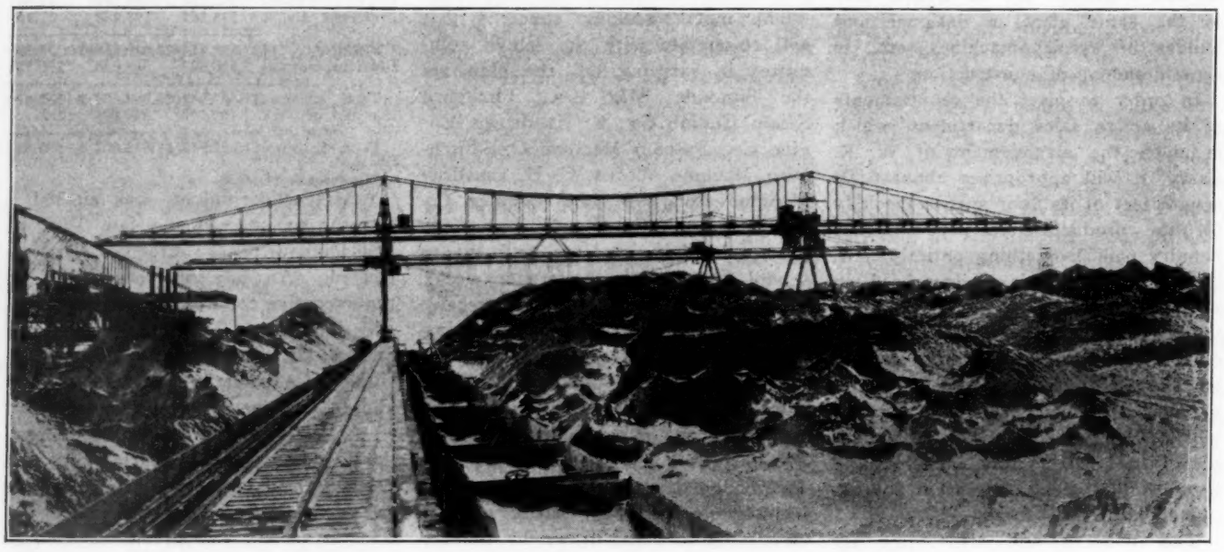
MODERN ORE HANDLING MACHINERY.---II.

By Walter G. Stephan.[1]

The writer in the first article of this series considered some of the machinery for unloading and rehandling of iron ore, as developed and built by the Wellman-Seaver-Morgan Co. The present article will take up the work done by the Brown Hoisting Machinery Co., Cleveland, and will present some of the latest installations made by that company.

The Brown Ore Handling Bridge.

The ore bridge illustrated in Fig. 1 was installed by the Brown Hoisting Machinery Co. at the docks of the Pittsburg & Conneaut Dock Co., Conneaut, O., during the season of 1907.



Brown Ore Bridge, Pittsburg & Conneaut Dock Co., Conneaut.

It is a companion bridge to the one installed by the same company some years ago at the same dock but is of larger capacity and somewhat different in design. Both bridges are built to rehandle iron ore from the Hulett and Brown unloaders to the immense stock yard shown in the illustration.

As is customary in all modern plants, the unloaders at the face of the dock drop the ore from the hold of the boat into a U-shaped concrete trough at the rear, from which the bucket on the ore bridge picks it up and carries it to the stock pile. The cantilevers from the unloaders overhang the U-shaped trough and the bridge cantilever overhangs the cantilevers on the unloaders.

The new bridge is designed to run on the same tracks as the old one and its main span is 250 feet 3 inches center to center, with cantilevers at either end 157 feet 5¼ inches long—making a total length over all of more than 565 feet. The extreme travel of the bucket is 530 feet.

The bridge is supported on a tower at one end and a shear leg at the other end. Its total weight is about 625 tons. The tower travels on two double rail tracks 32 feet center to center, the rails being laid on two concrete piers 12 feet 5¾ inches above the dock level, leaving space between the piers for two standard gage tracks for ore cars. The tower rests upon four equalized four-wheel trucks—all of them driven.

The shear leg rests upon two eight-wheel equalized trucks—of which only half of the wheels are driven. The wheels travel on a double rail track 36 inches center to center which is mounted upon a wooden trestle of the same height as the concrete piers at the tower end.

The lower chord of the bridge proper is horizontal and supports the track for the trolley below it. The bridge trusses are 18 feet center to center and the gage of the trolley track is 10 feet 4 inches. At the tower connection the bridge is provided with roller bearings and a pivot while the connection to the shear leg is a ball and socket joint. This provides for a maximum skew in the bridge of 1 in 9, either side of the normal position.

Interesting features in this connection are the devices designed to prevent skewing beyond the extreme positions allowable. One is a mechanical device which consists of a system of levers and rods on both the tower and shear leg by means of which a notched casting is gradually forced down upon the track rail to prevent further skewing, as the bridge is swung out of its normal position. The lever system is carried from the locking device at the rail, up the tower or shear leg to the bridge to which it is finally fastened. As the bridge swings, the relation between it and the shear leg or tower varies and this relative movement operates the locking device at the rails below. The second safety device to prevent over skewing is electrical and consists of an electrical cut out located at the top of the tower which is in the circuit of the moving motor. When the bridge is skewed to the extreme position on either side of the center, the current for the moving motors is automatically cut out. The action is much the same as that of a controller

[1]Consulting mechanical engineer, Citizens building, Cleveland.

—the bridge being considered the handle of the controller, and the arc of contact being twice the angle represented by a skew of 1 in 9.

The bridge is provided with a man trolley which operates a Brown standard 10-ton grab bucket. The trolley is mounted on four equalized two-wheel trucks all of which are driven. It is of the standard construction and allows the operator to handle his bucket either lengthwise or at right angles to the trolley track.

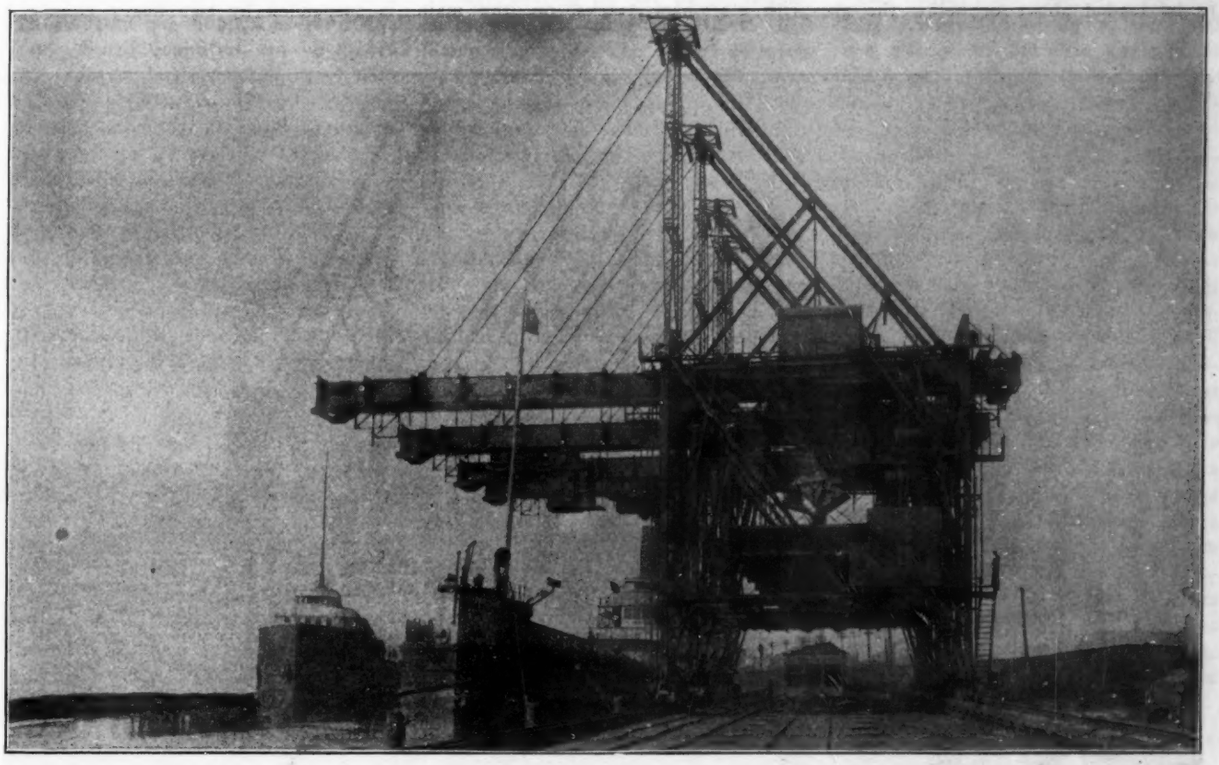
The weight of the trolley is about 41 tons and of the bucket about eight tons. All of the operations on the bridge are electrical, and all of the motors were made by the Ellwell Parker Co., Cleveland.

The two hoist motors on the trolley are rated at 200 horsepower and are designed to hoist the bucket at a speed of 250 feet per minute. The two trolley travel motors are designed for a speed of 1,000 to 1,200 feet per minute and are rated at 75 horsepower.

The 150-horsepower moving motor is located on the bridge proper near the tower and is connected by means of the usual longitudinal bridge shaft, and gearing to the shafts running down the tower and shear leg to the driven trucks. The entire bridge is designed to travel at the rate of 50 to 100 feet per minute under full load. The moving motor is operated by master controllers located at both the tower and the shear leg, so that the operator on the trolley can move the bridge by running to either end of the main span. A solenoid brake is provided on the moving shaft by which the bridge moving mechanism is always locked except when current is sent through the moving motor. Rail clamps are provided on both bridge tracks by which the machine is securely clamped to the rails when not in use.

At the top of the tower, a swinging crane is provided for the purpose of handling the machinery in the trolley, whenever this is necessary. The trolley is provided with air brakes and also solenoid brakes for additional safety. The bucket has a spread of about 15 feet 1½ inches and a width of about 6 feet 8 inches. In a test run made some time since, it averaged over nine tons per bucket.

The clearance of the bucket above the dock level is about 52 feet and the capacity of the ore pile contained between the tower and shear leg is about 635 tons per lineal foot. The length of runway is 1,100 feet, making the total storage capacity of the yard included between the two runways (exclusive of the capacity under the cantilevers) 666,000 tons. The bridge is designed for a capacity of 425 tons of iron ore delivered from the U-shaped pit to the middle of the span per hour. The fact that the front cantilever of the bridge overhangs the unloaders at the face of the dock is taken advantage of in the handling of machinery for repairs, etc., on the unloaders. Current is supplied to the machine at 220 volts from conduit rails running alongside of the shear leg runway rails, the two conduits being protected by vertical boards running lengthwise between them.

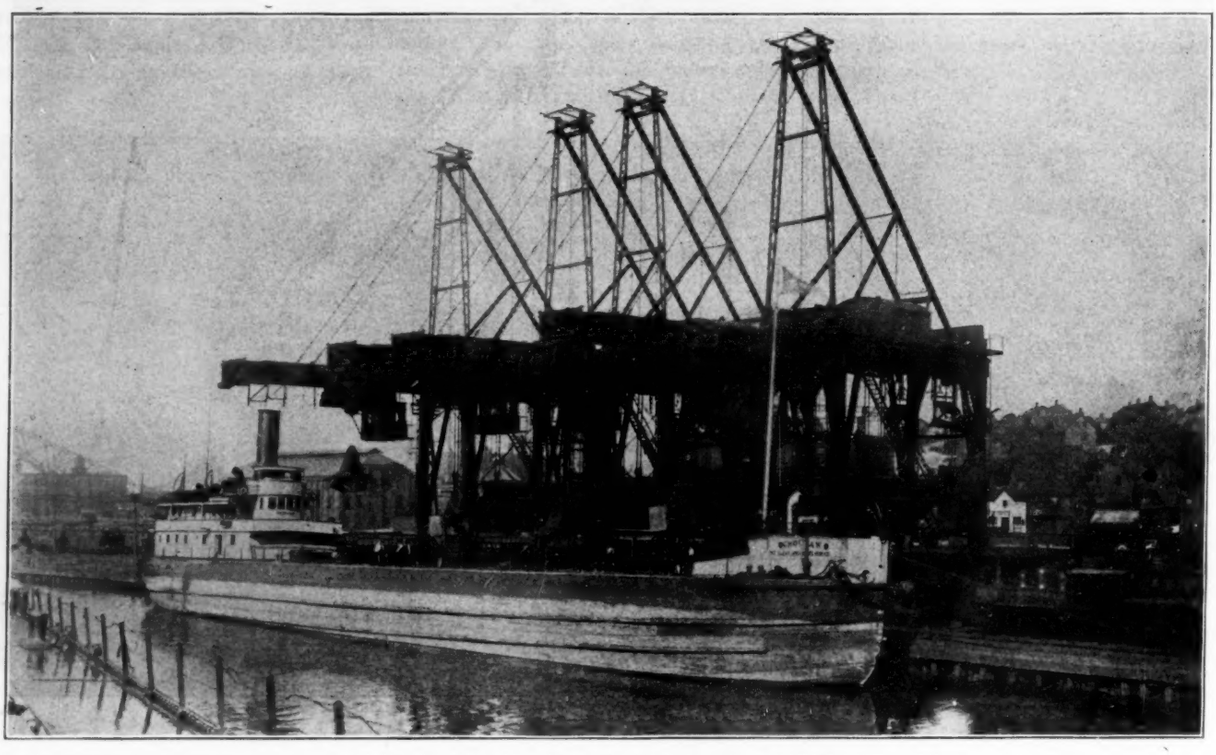


BROWN FAST PLANT AT N. Y., P. & O. DOCKS, CLEVELAND.

A Brown Fast Plant.

Perhaps the latest and most complete ore unloading plant installed by the Brown Hoisting Machinery Co. is the one shown in Fig. 2 which consists of four machines erected during the early months of 1907 at the ore docks of the N. Y. P. & O. R. R. at Cleveland. These machines were designed to unload ore from lake boats directly into railroad cars. No provision is made for unloading into a trough or stock pile at the rear of the machines as is done at Conneaut and Fairport, where the same type of machine is provided with a cantilever extension which allows the

bucket to be carried back of the rear legs and dumped. The feature of this new plant is the weighing hopper. During recent years there has been a growing demand among ore shippers for a satisfactory weighing device which would eliminate the delays occasioned by the weighing of the loaded cars on separate scales. In the past, a man called the car guesser had to estimate as nearly as he could, the amount of ore loaded into a car before it was weighed. Several switchings were necessary before the car could be run onto the "automatic" scales, and if the car was then found to be loaded above or below the allowable 10 per cent excess, such an amount of ore had to be taken out by shovels in the best way possible, before it was allowed on the road. This method resulted in numerous delays and re-weighings and it was to avoid them that weighing the ore, as it is delivered to the car from the hopper, was suggested. The problem was put up to the designers of ore handling machinery and the above plant is one of the satisfactory solutions which have been offered by them.



BROWN FAST PLANT AT N. Y., P. & O. DOCKS, CLEVELAND.

All of the four machines illustrated are alike. Each is designed to handle a standard 5-ton Brown grab bucket. The main frame is supported on four posts, two front and two rear, running on two double rail tracks which are 46 feet center to center—and spans three standard gage railroad tracks with a 16-foot clearance vertically. Each of the rear posts rests upon a four-wheel truck, all four wheels of which are driven. Each front post rests upon a six-wheel truck, only four of its wheels being driven.

On the top of the main frame is the machinery house. Pivoted at the top of the main frame on the water side is a heavy swinging apron which can be raised or lowered. This apron is provided with tracks which line up with stationary tracks on the main frame for the travel of the trolley in and out, when the apron is lowered to its horizontal position. Projecting above the main frame is the mast and brace which supports the sheaves and latch for operating the apron and also the suspension rods when the apron is down. Traveling on the overhead tracks is an electrically driven man trolley which handles the 5-ton bucket. Directly underneath the path of this bucket and suspended by heavy rods from the frame work above is the weighing hopper into which the bucket dumps its load and returns to the hold of the boat. This hopper is of 200 tons capacity and has wide flaring sides, so that careful dumping of the bucket is not necessary and does not cut down the speed of operation. At the bottom of the hopper are two chutes each 7 feet by 2 feet with electrically operated swing gates for delivering the ore to the cars below. These gates operate simultaneously and are arranged to load cars on the middle track only. Horizontal poke holes of generous size are provided at the bottom of the hopper in case the ore clogs or arches in it. The 25-horsepower motor for operating the gates is mounted on a platform at one side of the hopper.

As previously described, the hopper is suspended by two heavy equalized rods 2¾ inches diameter at each of its four corners, and is provided with two horizontal sway rods at each end. The vertical suspension rods are connected to the levers of a special Brown hopper scale with long knife edges and with levers made of latticed steel shapes. The scale house is located on a level with the hopper and at the rear end—in such a position that the weighman beside the beam box in the house can see the car below to be loaded and also the two gates at the base of the hopper. The weighing operation takes place in the following order: The hopper is first filled with about 150 tons of ore by means of the grab bucket—the weigh-

man then balances its weight on one of the two beams before him in the house—recording this weight. Then he sets the rider on the second beam to read such an amount (say 50 tons) as he wishes to discharge into the car and by means of the controller at the side of the beam box starts the motors for opening the gates. When the second beam is almost balanced he shuts off the current and closes the gates. In case he has not quite enough ore on the car (say he lacks 200 pounds of the 50 tons required) he opens the gate slightly again to discharge a small amount. His control of the amount of discharge from the hopper is quite delicate. Small quantities can be loaded as easily as large amounts and with ordinary care he can load within 50 pounds, although the scale beam is graduated to 20 pounds. This cycle of weighing is gone through for each succeeding car, saving a great deal of time and permitting the loading of cars up to the very limit of their excess capacity. A car record is kept by the weighman for each car loaded, this record showing the weight but not the kind of ore loaded, the latter feature being covered in the office.

In a comparative test of these scales which was made so as to determine the accuracy with which the cars could be loaded, a total difference of only 375 pounds was discovered in the weight of the ore loaded onto 16 50-ton cars. In this test, the weighing was more carefully done than in the ordinary operation of the machine.

The apron is made of two solid web girders held together by yokes on the top and supported in a horizontal position by two linked rods running to the top of the mast. To the inside bottom flanges of these girders is fastened the trolley track which lines up accurately with the stationary track on the main frame when the apron is down and the rods are taut. On this track, which is about 114 feet long end to end, travels the man trolley operating the grab bucket. The length of the apron is such that the bucket can reach ore at a point 54 feet from the center line of the front legs of the unloader.

When the machines are not in use, the apron is hoisted by power to a nearly vertical position and latched there for added safety. The trolley carries a cage for the operator who controls not only all the movements of the trolley but also all the movements of the machine as well, except the weighing of the ore. The bucket operating mechanism on the trolley is mounted on a turntable, permitting the turning of the bucket through an arc of 360 degrees in order to cover as much space as possible in the hold of the boat, and to allow the bucket to be turned across the hatch after it has been lowered down through it lengthwise. Separate hoisting and trolleying motors are provided so that both operations can take place at the same time in entering or leaving a hatch—thus saving considerable time in a day's run. The entire trolley is hung from four cast steel double flange track wheels which are driven through gearing by one 100-horsepower motor at a speed of 800 to 1,000 feet per minute. The bucket hoisting mechanism is driven by two 150-horsepower motors designed to hoist the loaded bucket at a speed of 300 feet per minute. The bucket as previously mentioned has a capacity of 5 gross tons, a spread of 14 feet and width of 5 feet. It weighs approximately 11,000 pounds.

In the machinery house at the top of the main frame, is located the mechanism for moving the machine along the tracks and also the mechanism for raising and lowering the boom. Four vertical shafts with universal couplings are carried up the legs from each of the four trucks to shafts connecting them at the top. A third shaft running from front to rear connects with these through bevel gears and is driven through spur and bevel gearing by a 75-horsepower motor, designed to move the machine at the rate of 50 to 75 feet per minute. A solenoid brake is provided—also an emergency foot brake which can be operated from the machinery house floor. By means of jaw clutches the 75-horsepower motor can be used to operate the two apron raising drums one on each side and wound with two ⅝-inch steel cables. These cables lead over two pairs of sheaves at the top of the mast, making eight parts of cables in all between the mast and apron. During the cold months a safety ratchet drum is also used as an additional precaution when raising the apron.

A feature which has not yet been mentioned is the automatic trolley stop at the front end of the main frame, which is designed to prevent a careless operator running the trolley out into the river when the boom is up. It consists of a swinging bumper on each track, one end of which rests on the trolley track when the boom is up. To the other end of the bumper is fastened a light steel cable which runs over sheaves to the apron and as the apron is lowered the pivoted bumper is automatically raised free of the track and the trolley. By a similar cam movement a cast iron cable guard is thrown down automatically at the hinge so as to prevent unnecessary wear on the trolley cables when the boom is being hoisted. Two platforms are provided at the rear of the machine with block and tackle for handling the trolley machinery in case repairs are necessary. These platforms are arranged to swing back out of the way when not in use.

The capacity of each of these machines running normally is over 200 tons per hour, but the capacity is easily run up to 300 tons per hour during the first part of a cargo. This plant will unload fully 90 per cent of the modern ore boat without the use of men in the hold. When cleaning up a cargo four men shoveling are used to each machine. The entire construction of these unloaders is fireproof and liberal and substantial stairways, ladders and walks are supplied so as to make access to all vital parts safe and convenient. Current is supplied to the entire plant from two conduit rails running parallel with the rear tracks and on either side of them. These conduit rails are protected by continuous steel plate guards which cover them everywhere except where the contact shoes have to pass. Rail clamps are provided—one at each truck as usual. The cars are handled to and from the machines for loading by means of a continuous cable system which is operated under particularly difficult conditions.

The Laconia Car Co., Laconia, N. H., has closed contract with the Aberthaw Construction Co. of Boston, for the erection of cabinet shop and storage building. It is proposed to build the cabinet shop with concrete walls and mill construction floors. The storage building is to be fireproof. The work involves the removal of two of the existing wooden buildings to make room for the new construction. The work is to be pushed rapidly in order to give the increased output necessary for the car company's business.

The Llewellyn Iron Works, Los Angeles, Cal., has been awarded the contract for the structural steel for the Story building, for $142,500. The building will cover an area 121 x 150 feet.

THE PAYMENT OF WAGES.[1]

Editor THE IRON TRADE REVIEW:

I have read with interest Harrington Emerson's criticism of my article on "The Payment of Wages," which appeared in the March 19 issue of your valued publication. Most of Mr. Emerson's points are well taken, although in the course of his discussion he shows that he has not grasped the essential purpose of the Diminishing Premium plan, nor is he entirely alive to all of its possibilities.

Scope of the Emerson Plan.

Mr. Emerson devotes the most of his attention to a comparison of the diminishing premium system with the efficiency premium system, of which he is the originator. It is therefore necessary that we consider this latter system at some length. Unfortunately, Mr. Emerson does not give us a clear and accurate description of the workings of this system, and of the methods of calculating the premium, when the time taken is greater than what he terms "standard time." When, however, the time taken by the workman is less than "standard time," his system is nothing more or less than the Halsey system, with the fraction almost, but not quite, unity. If it were unity, the system would be a straight piece work system. Mr. Emerson's efficiency premium system is therefore open to all the objections which I urged against the piece work and Halsey premium plans, and which he acknowledges as valid in the opening of his criticism.

The efficiency premium system contemplates the payment to the workman of "full wages for all the time he has saved below standard, but he is also paid 20 per cent premium on the time he actually works." In other words, if the wage rate is 30 cents per hour, the man receives 30 cents per hour for time saved, and 36 cents per hour for time worked, if he saves any time at all. This is exactly the same as paying a man 36 cents an hour under the Halsey plan, and paying him for five-sixths of the time he saves. If he were paid for all the time he saves the Halsey plan would be a straight piece work proposition. In the same way, if the workman were paid no premium, instead of the small 20 per cent premium, under the Emerson efficiency premium system, that would also be a straight piece work plan. As it is, it misses it only by a very narrow margin.

Mr. Emerson's account of the workings of the efficiency premium system leaves no doubt in the mind of the reader that he has successfully avoided the troubles ordinarily incident to the use of the piece work and the Halsey systems, and the reason is not hard to find. It lies in the fact that Mr. Emerson makes a very careful and accurate determination of the time which will be required for each task. I infer also, although he does not say so, that Mr. Emerson has the courage of his convictions, and is willing to pay his workmen whatever they can earn under his system, irrespective of the fact that the earnings of one man may be 10 times that of another one doing the same class of work. Given the same careful determination, and the same willingness on the part of the employer to pay unusual wages for unusual results, any piece work or premium system would achieve the same success.

On the other hand, were the efficiency premium system to be tried out in a shop wherein there was no properly organized cost system, disaster would follow just as inevitably as it would follow in the case of the piece work plan. When the standard time is made too small, there will be endless dissatisfaction on the part of the men. When the standard time is made too great, and the men's earnings become very large, there will be cutting, and dissatisfaction. The efficiency premium system is only adapted to those circumstances in which any piece work or premium plan would prove a success, and it has under those circumstances, no special merit to recommend it.

Taylor's System.

Broadly speaking, there are two methods in use in directing the affairs of manufacturing plants. The first one we may call the Taylor system. This system comprehends the collection and classification of all data dealing with costs and shop methods, the deduction from these data of the best methods of operation and management, and a system of printed or written instructions to all parties interested, covering every detail of the operations decided upon. In the language of Mr. Emerson, Mr. Taylor has "evolved a plan by which in every possible manner, the duty of increasing the efficiency of the worker devolves upon the employer, the worker becoming wholly subordinate to a perfect system of shop management." Some premium system, which will stimulate the worker to his greatest efficiency, forms a part of this system. It may be the differential piece rate system, or it may be any other system except the day work system. If Mr. Taylor's ideas of factory management are properly and thoroughly carried out, any system of wage payment which offers the highest reward to the man doing the most work, and less reward to the men doing less work, will be entirely satisfactory. It is immaterial whether the differential piece rate, the straight piece rate, the efficiency premium, the Halsey premium, the diminishing premium, or the bonus plan be adopted. There will be no complaint from anybody. As I have already intimated in my previous paper, however, I believe that under these conditions the straight piece work plan is the best, because it is the simplest and most easily understood, and because it appeals to the average workman as being eminently fair, if he is assured that the rate will not be cut.

Ordinary Shop Management.

The second method of factory management contemplates a system which will insure that the required work is properly done, and which will, after a fashion, keep a record of the workmen's time in order that they may be paid in accordance with some prearranged schedule. The routing of the work, and the methods of doing it are left largely to the judgment of the foremen and individual workmen. The time required by different workmen of approximately equal ability, for the performance of a given task, may be, and probably will be, very different, for the reason that they will do the task in a variety of ways. In the course of time, by dint of casual observation, standard methods will be arrived at for the majority of the work. The chances are that the most of the methods so evolved are very good, that quite a few of them will be very poor, and that almost none of them will be as good as they could be.

It is idle to deny that most shops are managed in the manner indicated in the preceding paragraph. It is not the best system of management, but it is the best system which the average manager is able to carry out with any degree of success. The Taylor system of shop management

[1]This is a reply to Harrington Emerson's criticism in THE IRON TRADE REVIEW of July 23, of Mr. Cardullo's article on "The Payment of Wages," published in THE IRON TRADE REVIEW of March 19.

will generally fall of its own weight unless the man who attempts to direct it is one who has rare ability as a director, and in addition has had considerable experience in its application. The problem which the average manager has to face, then, is to obtain the maximum efficiency from the ordinary system of management.

If he attempts to combine the efficiency premium system of wage payment, as outlined by Mr. Emerson, and the ordinary system of cost keeping and shop management, he will come to grief, unless the conditions of his experiment are very exceptional. If, however, he combines the ordinary system of management and cost keeping, with the diminishing premium plan which I have been advocating, he cannot come to grief, if he uses ordinary common sense.

Cardullo's and Rowan's Plans Compared.

Mr. Emerson has intimated that the diminishing premium system is the Rowan premium plan. As a matter of fact, it is a generalization of that plan, and the premium is computed in an entirely different manner. It will be remembered that by the diminishing premium plan, the workman is paid an hourly rate of

$$P = W\left(1 + \frac{T_s}{k \times T_a}\right)$$

where P is the hourly rate actually paid, W is the minimum wage rate, or base rate, T_s is the time saved, T_a is the time allowed, and k is any number, integral or not, as the case may warrant. Although the Rowan premium is computed in an entirely different manner, the hourly rate is exactly the same as that given by the diminishing premium plan when k is equal to unity. If k has any other value than unity, the two plans give dissimilar results. As it is of considerable importance in the application of this scheme of wage payment, to make use of the formula with other values than unity for k, it will be seen that the diminishing premium plan is an advance on the Rowan premium plan.

The secret of successful management with the ordinary shop system, is to so arrange matters that the men shall be keenly alive to suggest and adopt improvements. Any premium or piece work system puts the men, who have in hand a certain task, on the lookout for improved methods of accomplishing it. Such a system, however, does not accomplish all that it might. It should be combined with some system by means of which a man will be rewarded handsomely for a valuable suggestion in regard to other work than his own. If an elaborate directive system is necessary in order that the efficiency premium system may be successful, it is but fair that the diminishing premium system should be supplemented by some such bonus scheme as I have indicated, in order to put the two on an equal footing.

Cardullo's Plan Applied.

Let us see how the diminishing premium system would work when applied to such a shop as that of the Santa Fe road After some months' or years' experience with the day work system, or any other system of wage payment, for that matter, it would not be difficult to fix upon a standard time for each particular job, which any given employe might be expected to reasonably take, if he was faithful and industrious. Each employe will be guaranteed a certain minimum wage rate, depending on his experience, ability, intelligence, or market value as a workman in that district. The base rate for any particular job will be fixed at the lowest rate paid to any workman capable of satisfactorily doing that job. In general, it does not pay to employ a 30-cent-an-hour machinist on a job which could just as well be done by a 15-cent-an-hour laborer, although there may be emergencies when it would pay well. Hence the practice of assigning a base rate and a standard time to every job, and a minimum rate to every man.

Having established the base rate and standard time for a job, it is next in order to see how much the men will improve upon it. In general, some improvement will continue until the limit of improvement has been reached, or until the men feel that a further increase in their efforts will not be sufficiently rewarded by the resulting small increase in their earnings. When that point has been reached, a new base rate and a new standard time may be fixed, which will result in the same pay for the same work, but which will offer a greater incentive for further effort. If advisable, from the data so gained, a third base rate and standard time may be figured which will at the same time increase the pay of the workman and reduce the cost of the output.

Numerical Example.

A numerical example will perhaps serve to make the matter more plain. Let us suppose that the job is boring and facing cylinders. The base rate will be fixed at 25 cents an hour, and the standard time at 5 hours. Let us start out by making k equal to 3, which will produce initial results in time saving equal to those produced by the Halsey plan, when a one-third premium is paid. Let us suppose that as a result of this incentive the actual time is cut to 3½ hours by A, to 3 hours by B, and to 2¾ hours by C. Their earnings per hour will then be 33 cents, 34 cents, and 34½ cents, respectively. The labor cost of the work will be for A, $1.155; for B, $1.040, and for C, $0.949. Assuming overhead charges of 30 cents an hour, the total cost per piece will be $2.205 for A, $1.940 for B, and $1.662 for C. In order to get any further cut in the time, it will be necessary to reduce the standard time, and to correspondingly increase the rate per hour. It will be noticed that in cutting the time from 3 hours to 2¾ hours, the man's wages were only increased by 1.47 per cent, while his output was increased by 9.1 per cent. In other words, when the workmen first began to cut the standard time, a 3 per cent increase in their output gave them 1 per cent increase in wages, but now it takes over 6 per cent increase in their output to earn 1 per cent increase in their wages. They have reached the point where there is no longer any incentive for them to increase their output.

It is next in order to reduce the standard time to 3 hours, and to increase the base rate to 34 cents per hour. It may also be noted that as the time is cut for any job, the amount of effort required to make any given further cut increases. Therefore, in order to stimulate the required effort, we will reduce k from 3 to 2, thus giving the same initial inducement as does the Halsey plan, when a one-half premium is paid. Let us suppose that as a result of this change that B cuts the time to 2½ hours, and C to 2¼ hours. At no time has their day's earnings been cut, and they now make 36.9 and 38.2 cents per hour, respectively, the labor cost in each case is 92 and 86 cents, and the total cost is $1.67 and $1.535 in the respective cases. In the best case, the time has been cut from 5 hours to 2¼ hours, the labor cost from $1.50 to 86 cents, and the total cost from $3 to $1.53. The greatest increase of wages over the base rate is 27.3 per cent.

Meantime, what has become of A? Well, if we can put him on some other

job more suited to his talents, let us do so, thereby benefiting both ourselves and him. If we cannot, and need his services on this job, let us continue the old basis of payment to him, or to any other man who is not able to do the job in three hours or less, putting him on the new basis just as soon as he is able to cut the time to less than three hours.

Let us suppose that D has an original idea on the way in which this job should be done, and that he is able to convince the foreman or superintendent, or some special officer having the matter in charge, that his way will save money. Let us assume that 200 of these cylinders are needed each year, and that the rig which D proposes will cost $30 to make, and will turn the parts out at a cost, in the case of the best workman, of 53 cents each. The total saving to the company by one year's use of D's method will be $200 less $30, or $170. In order to encourage such valuable suggestions, the company will pay him one-half the saving, or $85, as a bonus, at the end of the year.

Work Done Out of Hours.

Mr. Emerson discusses cases of work done out of hours, and work done at home, of workmen who sublet their work, or hire helpers on their own account, and of men who work at two tasks at the same time. I have seen a good many shops, some of them big ones, and they were engaged in all kinds of work, but such conditions were far from common. As far as I have been able to find out, the system of individually hired helpers, and of subletting work is a vicious one, and rather to be discouraged. If the men are anxious to work out of hours, and the company is willing, the best plan is to adopt a straight piece rate for such work, with the understanding that the piece rate will be revised at definite intervals, and will always be made the same as the labor cost of work done regularly in the shop under the diminishing premium plan. When a man volunteers to do two jobs at once, there are three courses open: First, treat the matter as a valuable suggestion, to be paid for on the basis of some percentage of a year's saving, and readjust the rate. Second, if he seems to be the only workman who can do the trick, on account of great strength, unusual dexterity, or something of the kind, pay him in full for both jobs. Third, pay him an hourly wage equal to full pay for both jobs, less the smaller base rate, or some fraction thereof. I think in most cases that the fraction should be one-half of the lesser base rate.

Examples might be multiplied indefinitely to show the methods by which the diminishing premium plan may be modified in order to apply to unusual conditions. No plan will apply to all conditions, but all require modification under unusual circumstances. There is nothing in the diminishing premium plan which makes it less flexible, or less adaptable to modification than any other plan, and it certainly avoids many of the objections which appear against other plans when circumstances re unusual.

Emerson's Assumptions Incorrect.

In comparing the results of the two systems under discussion, Mr. Emerson makes an assumption not warranted by any known facts, which entirely vitiates his conclusions. He assumes that for practically the same wages, men working under the efficiency premium plan will be 25 per cent more efficient than men doing the same work under the diminishing premium plan, all other things being equal. If you give the former workmen the best possible management, and the latter ones the ordinary type of management, such would undoubtedly be the case, but if both shops had managements of ordinary type and excellence, there would be no difference between the efficiency of the two when they were running, and the profits of the shop operating under the diminishing premium plan would be much the larger, for the reason that there would be better feeling on the part of the workmen, and no strikes on account of cut rates.

Another fallacy in Mr. Emerson's criticism is the assumption that the efficiency premium system, as outlined in his article, will of itself automatically attract the good men, and repel the poor ones, and that the diminishing premium system will not. Whether or not the best class of men are attracted to a shop depends on whether the shop pays good wages, whether the men are well treated, and whether proper home advantages are offered by the town in which the shop is situated. High wages attract all kinds of men. The other attractions I have mentioned serve to draw only the better men. The best way to fill a shop with satisfactory men is to use all the methods I have mentioned for drawing men, and then to discharge the poor ones, keeping the good ones. The diminishing premium plan does not offer better inducements to the poor stick than to the first-class workman, as Mr. Emerson seems to imply, but rather the reverse. It offers the higher reward to the better man. If the wages earned are satisfactory, the better man will stay, and so will the poorer one, if he is allowed. It is the company's place not to allow him to stay, if he cannot make good in competition with his fellows, along some line or other of the work.

Conclusions.

In conclusion, Mr. Emerson's efficiency premium system is practically a piece work system, with a minimum guaranteed hourly rate. It therefore is open to all of the disadvantages of the piece work plan. Its advantages are those of the piece work plan, and no others. It can only be saved from failure in the ordinary case by the Taylor system of shop management. The average manager is not capable of carrying out successfully the Taylor system in the average shop. Therefore, the efficiency premium system will not be a success in the average shop, when applied by the average manager.

The diminishing premium system has the following valuable characteristics which insure its success when applied by the average manager in the average shop. It prevents wages from rising to an exorbitant point when a large error is made in establishing rates. The schedule of time allowances may be cut for the purpose of reducing labor costs, without cutting the men's earnings. The system may be modified, either by an extension of its own principle, or by combining it with other systems, in order to adapt it to special or unusual circumstances. The comparison which Mr. Emerson institutes between the two systems in his criticism is worthless as an exhibition of the relative merits of the two systems, because the assumptions are incorrect.

FORREST E. CARDULLO.

Syracuse, N. Y., Aug. 6.

New Blooming Mill.—In connection with the extensive improvements that it is making to its McKeesport plant, the National Tube Co. has awarded the contract to Mackintosh, Hemphill & Co., Pittsburg, for a large new blooming mill and manipulators. The mill will possess numerous improvements.

A Correction.—In the article entitled "Mechanical Reversing Device," published on page 250 of THE IRON TRADE REVIEW of Aug. 6, the operating speed of the planer on the return stroke was given as 20 feet per minute. This should read 200 feet per minute.

AN INTERESTING PROCESS FOR GALVANIZING NAILS AND SMALL ARTICLES.

An interesting process for galvanizing nails, washers, screws, tacks or any other small article has been put in operation at the new plant of the Keystone Nail Co., at Rochester, Pa. The patents are owned by the company, and have been in operation about three years at the Philadelphia works of this concern. This works was abandoned in the spring of this year and the plant moved to the new factory erected at Rochester. The use of water for cooling the nails after dipping has been dispensed with, an air blast being used instead. The practical results of the new process comprise a greatly increased capacity over the older method, the complete separation of the various articles after dipping, there being no sticking together due to the galvanizing coating cooling while the articles are in contact, and considerable economy, due to the recovery of a large part of the surplus zinc removed from the finished articles. The process is a continuous one, and aside from the pickling and dipping is automatic throughout.

The company has erected a new building at Rochester about 300 feet long by 80 feet wide. It is divided into three portions of nearly equal size, the first of which is a receiving room, the second section the finishing room, and the third the shipping room. The nails or other articles to be galvanized are brought in from the receiving room and placed in a pickling vat, whence they are removed to the dipping tank. This is a gas fired kettle 14 feet long, 30 inches deep by 20 inches wide, and contains about 23,000 pounds of melted zinc. The material is dipped in large pipe handled dippers about 12 inches diameter and 14 inches deep. These are perforated so that the surplus zinc may run off. The nails in these dippers are inserted at one end of the kettle and passed along to the other end where they are lifted out and placed, dipper and all, on a shaker which shakes the greater part of the surplus metal from them.

After about one minute of this process, they are dumped into a hopper leading to a beater which separates the individual pieces from each other. The beater comprises three rolls each carrying four blades, two of the rolls being located adjacent to one another, and with a space between the blades of about ½ inch. The third roll is located about 2 feet below the pair and all three are revolved rapidly. As the nails fall into the blades they are tossed about violently and completely separated from one an-

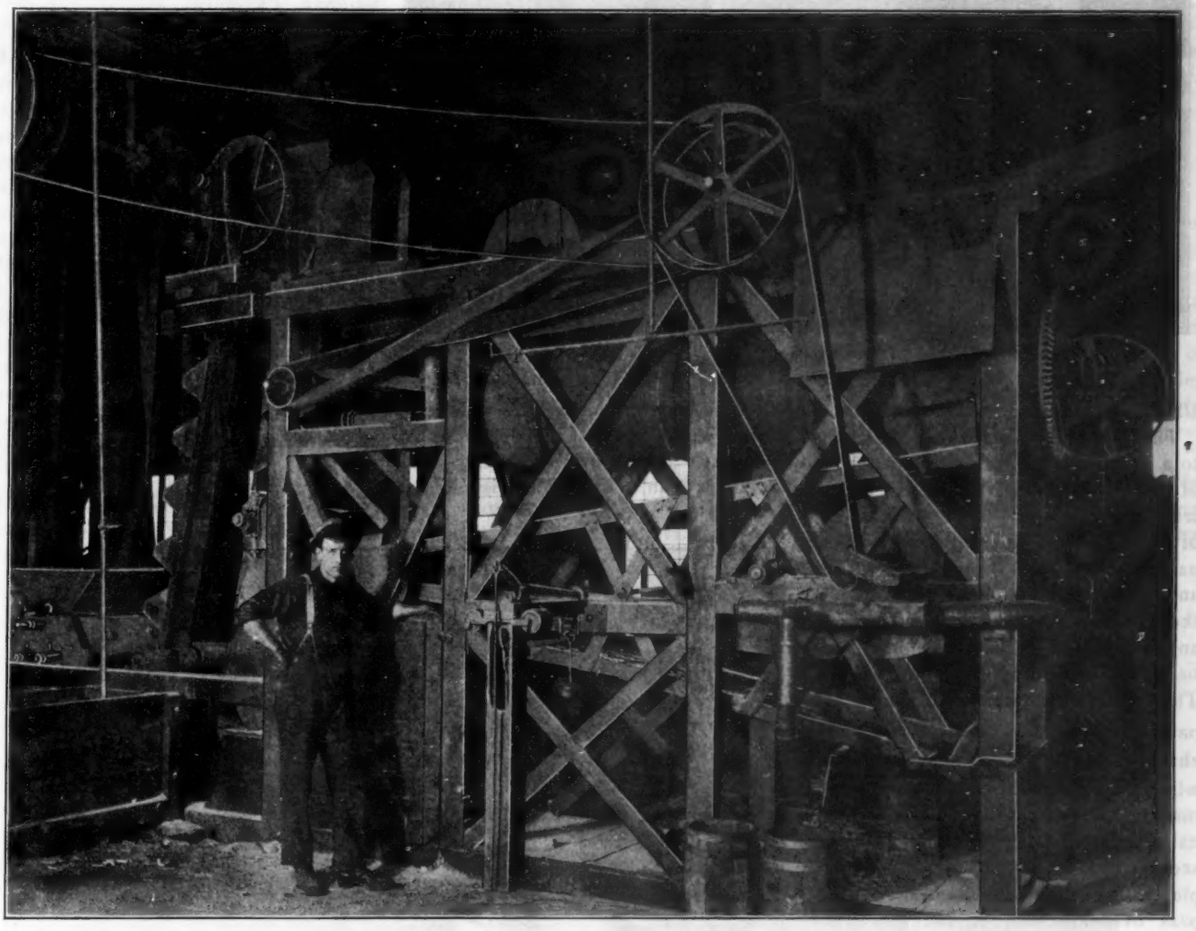


FIG. 1—COOLING AND CLEANING MACHINE FOR GALVANIZING ARTICLES.

other. After passing through this beater they fall into the boot of a chain and bucket elevator which raises them to the cooling machine where all the surplus zinc is recovered.

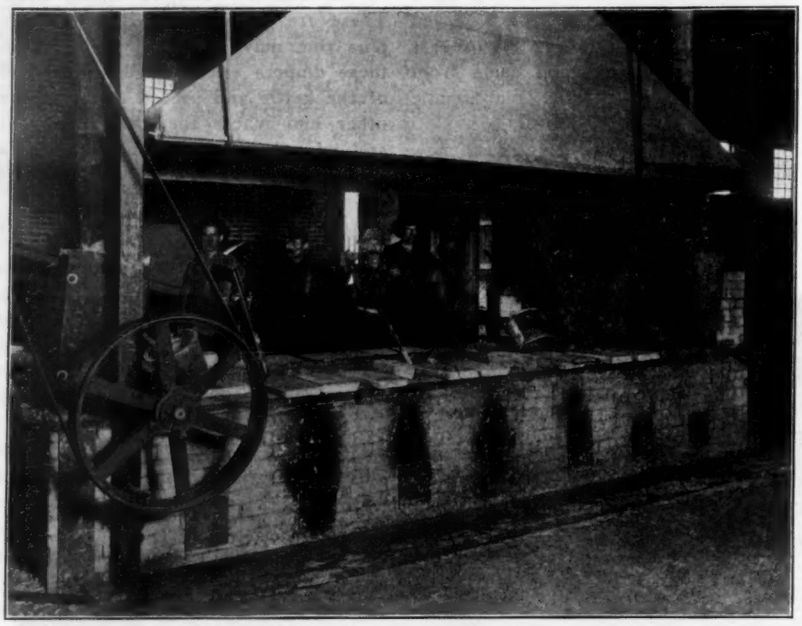


FIG. 2—THE DIPPING VAT.

The elevator discharges the nails to a chute leading to a revolving drum of about 24 inches diameter and 7 feet long. A blast of air from a pair of fan blowers is directed on the nails as they pass through this drum, and assists in cooling them while their motion in the drum completes any separation which may not have been accomplished in the beaters. This motion also tends to polish the nails somewhat. The drum discharges the nails onto a shaking tray which extends the entire length of the machine underneath the drum. The nails as they pass down this screen are further cooled and separated completely from surplus zinc. As they pass over the end of the tray they fall to a second one, while the loose zinc is picked up by a strong blast of air from another pair of fan blowers and blown into a receiving box underneath the machine. This box is clearly shown in the accompanying illustration. The nails pass down the second tray and into a chute which delivers them into a nail keg. Any loose zinc which may not have been removed by the first blast of air, is caught up by a second blast of air delivered against the lip of the delivery chute, and blown into a pocket below the chute leading to a box. The nails are weighed in kegs on a scale adjoining the machine, and the kegs are then headed and marked for shipment.

The recovery of this zinc represents no small item in the operation of the works. About 1,500 pounds of zinc dust are recovered during each 12 hours run. This dust is melted up, cast into pigs and used a second time in the dipping kettle.

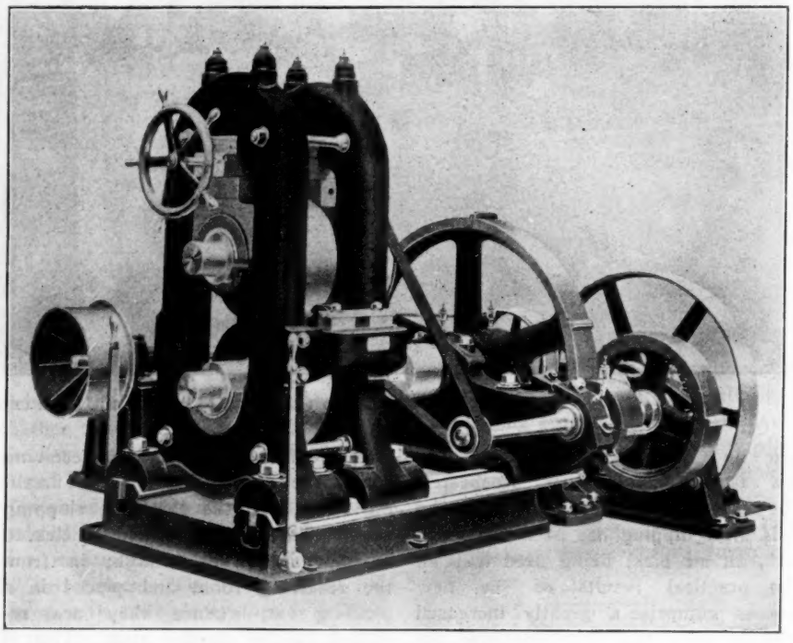
A further economy is effected in the process by the recovery of zinc from the skimmings from the dipping vat.

The operation of the galvanizing machine requires about 8 horsepower. A 25-horsepower gas engine supplies this power, at the present time being considerably underloaded. Space has been reserved in the galvanizing department for a second machine which is shortly to be put up. The present capacity of this plant is about 500 kegs of nails per day of 24 hours.

The officers of the Keystone Nail Co. are Herbert J. Meroney, president; Geo. F. Breisch, secretary, and J. Davis Seidell, treasurer, and the main office is located in the Keystone building, Pittsburg.

A GERMAN EQUALIZING MILL.

The accompanying illustration shows an interesting machine of German design, built especially for equalizing strips of metal for the manufacture of cartridge cases. It may be also used for equalizing strips of steel or iron where it is necessary to produce long or short pieces of absolute accuracy, as regards the thickness of the strip. The machines are so built, the adjusting device is so graduated, and the ratio between the rolls and the drive is such as to insure the removal of all inequalities in gage which have been left by the ordinary rolling mill. The metal is equalized by running it in one or more passes through the rollers of the equalizing mill.



GERMAN EQUALIZING MILL.

These mills are built in three different sizes, having rolls of 14, 16 and

20 inches diameter respectively. The rolls are each made from a solid block of cast steel. They are dead hardened on the surface and ground to exact sizes and highly polished in order to obtain high efficiency and produce satisfactory results. The necks of the rolls are proportioned to the face and thus avoid any vibration during the running of the mill and prevent springing of the rolls. If necessary the rolls can be arranged for interior water cooling. The necks are protected by tightly fitting covers which shield them against dirt which would otherwise settle on their surface and destroy the accuracy of the machine in operation. The roll housings are substantial and amply strong to resist any strains to which the machine may be subjected. They are made of steel and are strongly tied together by tie rods, as well as being firmly bolted to the bed plate. All bearings are of phosphor bronze.

The adjustment of the rolls is regulated by means of a wedge adjustment clearly shown in the illustrations and moved by a hand wheel. A graduated dial permits the grip of the roll being controlled to 0.0001 inch. If required a feeding device with delivery table is supplied with the machine. The feed device has adjustable jaws, is made entirely of steel and the jaws are provided with a lining of hardened tool steel.

The mill is driven by means of a belt pulley controlled by a friction coil clutch. The drive in the 16 and 20 inch sizes is through a double reduction spur gearing, while the 14-inch size is single geared. All gears are machine cut from the solid and are protected by covers and run in an oil bath. The driving shafts are ring oiled.

The upper roll is driven by belt from the driving shaft, thus avoiding giving too heavy a pinch and consequent unevenness in the strip produced. The lower roll is driven direct and is connected by a sleeve coupling to the driving shaft. In the case of mills used for rolling long strips, a coiler is supplied for rewinding material after passing through the rolls. These machines are built by the Walzmaschinenfabrik of August Schmitz, Dusseldorf, Germany.

THE ALLIANCE TRAVELING BUCKET CRANES.

The use of electric traveling cranes for the economical handling of all kinds of material with the clam shell type of bucket is constantly increasing. The cranes can span any number of railroad tracks and can load or unload cars on any of the tracks, regardless of the fact that cars may be standing on all the remaining tracks. The operator's cage can be attached to the trolley and thus enable the operator to be directly over his work at all times, or the cage can be secured to any point of the bridge desired. The cranes illustrated herewith were installed by the Alliance Machine Co., and are built to operate either from a direct or alternating current system.

The illustration, Fig. 1, shows a gantry crane for handling ash out of an ash pit in the yard of the Lackawanna railroad at Scranton, Pa. This crane has a span of 59 feet 6 inches and a capacity of 3½ tons. It is equipped with four alternating current motors, three of 22-horsepower, known as the hoist, hold and bridge motors respectively, and a trolley motor of 6-horsepower. The capacity of the bucket is two cubic yards. The crane will hoist at a speed of 60 feet per minute, while the trolley traverse is at 125 feet per minute, and the bridge travel is at a speed of 300 feet per minute.

Fig. 2 shows a cinder crane installed at the works of the National Tube Co., at McKeesport, which has

FIG. 1—ALLIANCE BUCKET GANTRY CRANE FOR D., L. & W. RAILROAD, SCRANTON YARDS.

a span of 70 feet and a lift of 40 feet. It is of 10 tons capacity and has hoist, hold, trolley and bridge motors of 50, 30, 10 and 30 horsepower respectively. The hoisting speed in this case is 70 feet per minute, the trolley traverse 150 feet per minute, the trolley traverse 150 feet per minute and the bridge travel 300 feet per minute.

The trolleys for these cranes can be designed to handle any type of bucket and they can further be arranged so that the bucket opens at

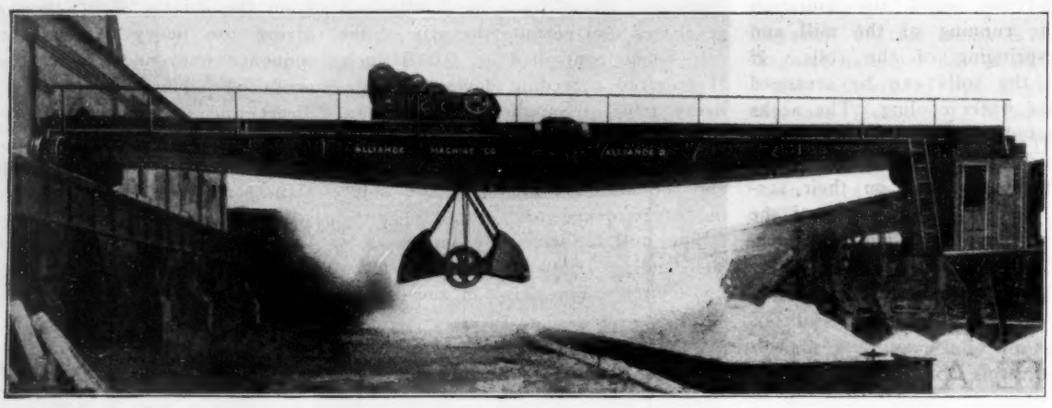


FIG. 2—10-TON ALLIANCE BUCKET CRANE FOR NATIONAL TUBE CO., MCKEESPORT WORKS.

minute and the bridge travel 300 feet per minute. This crane operates on a 225-volt direct current system.

Fig. 3 illustrates one of the standard traveling cranes installed in the cement works of the Universal Cement Co., Indiana Harbor, Ind., and at Munhall, Pa. These cranes are

right angle to or parallel with the runway girders. The cranes are provided with one motor for traversing the trolley, one motor for hoisting and closing the bucket and one motor for holding the bucket while dumping.

The gantry type of crane, when

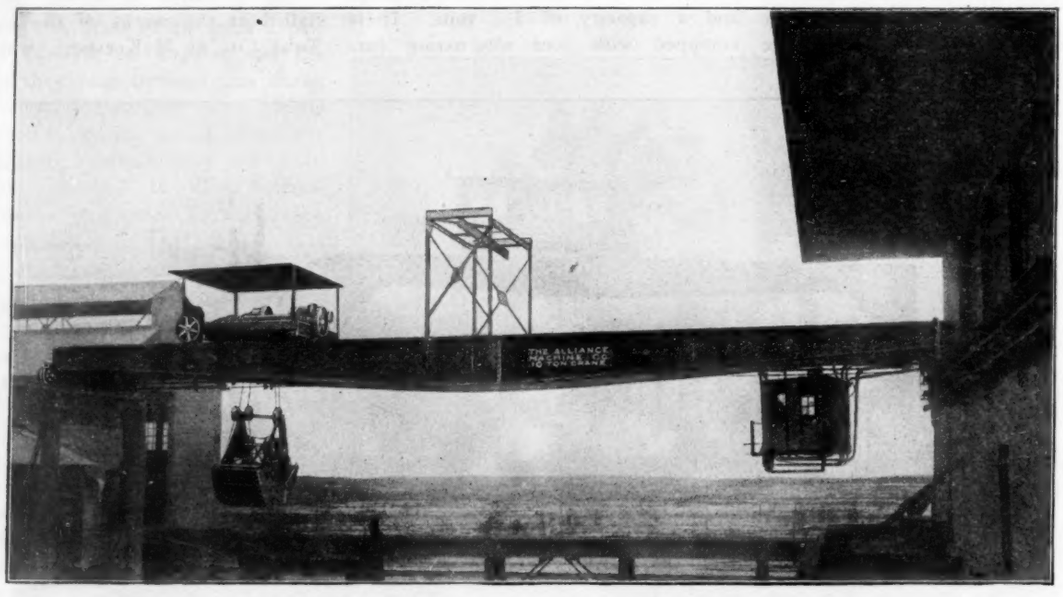


FIG. 3—10-TON ALLIANCE BUCKET CRANE FOR THE UNIVERSAL PORTLAND CEMENT CO., INDIANA HARBOR, IND.

equipped with alternating current motors and operate from a 3-phase 110-volt system. They are each of 80 feet span, and 10 tons capacity and are equipped with hoist, hold, trolley and bridge motors of 37, 37, 11 and 37 horsepower respectively. The hoisting speed is 50 feet per

constructed with cantilever ends, does not require elevated runways There is no difficulty in arranging the bridge wheels of the gantry crane so that they will cross railroad tracks which may pass in and out of the space covered by the crane. There are many cases, however, where the standard

traveling crane running on elevated runways is undoubtedly the economical arrangement, and this is especially so where the crane has a comparatively short longitudinal travel.

The Colorado & Southern railroad during July handled an average of 2,000 tons of iron ore daily between the mines at Sunrise, Wyo., and the Colorado Fuel & Iron Co.'s plant at Pueblo, Colo.

By the explosion of a boiler at the York rolling mill of the Susquehanna Iron Co., York, Pa., August 10, nine workmen were killed, several were fatally injured and heavy damage was done to the mill. The victims of the accident were chiefly mechanics from Columbia, Pa., who were engaged in making repairs. The mill had been closed for about a week.

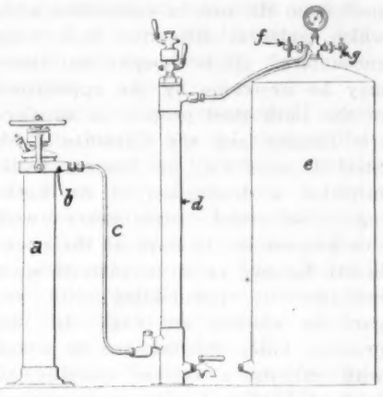
GENERATING OXYGEN FOR AUTOGENOUS WELDING.

Although rapid strides have been made of late in perfecting the process of autogenous welding and cutting metals by the intense and sharply localized heat obtained by burning acetylene in the presence of oxygen, any desired temperature up to 6,300 degrees Fahr. being obtained without difficulty, one of the most formidable obstacles in the way of its general adoption has been the cost of oxygen and the inconvenience of shipping it compressed in tanks to the place of operation. Pure oxygen, of course, has long been supplied to the medical profession, but at a price which proves considerable of a hardship when the attempt is made to use it commercially in the welding and cutting of metals.

To overcome this difficulty, a product called "Oxygenite" has been developed by the Industrial Oxygen Co., 11 Pine street, New York, a concern which for some time has been carrying on experiments and development work in autogenous welding with extreme success. Oxygenite is a special product in powder form, in appearance resembling fine gray sand. When burned in a closed vessel, it possesses the remarkable property of liberating the oxygen it contains, yielding about five cubic feet per pound. In making use of oxygen in work of this kind it is necessary to have a good reserve under a pressure of from 100 to 200 pounds per square inch, a condition to which oxygenite admirably adapts itself inasmuch as the resulting oxygen stores itself under a pressure of from 150 to 200 pounds, according to the kind of apparatus used, without the aid of auxiliary compressor or power. It is also practically impervious to moisture, and therefore does not deteriorate to any extent, even from constant atmospheric exposure.

In connection with this new product, the Industrial Oxygen Co. has designed a complete oxygenite apparatus, which is shown in the accompanying illustration. The oxygen generator (a) is a seamless tube with a moveable head, and contains a perforated sheet iron basket in which the preparation is deposited for burning. The basket is lined with asbestos cloth or paper before the charge is inserted. A match is then applied, the generator closed and the reaction begins at once. A safety valve is provided at the top of the generator near the outlet pipe leading to the lower part of the washing and cooling device (b). About three minutes is required for charging the generator and the generation of the oxygen is accomplished in from 20 to 40 minutes, according to the size of the charge.

The washing and cooling chamber is constructed of sheet steel of ample strength, and is filled with substances not subject to chemical reaction, such as pumice stone or pebbles on which an alkaline solution is poured. The oxygen then flows to the storage tank (c), a high pressure cylinder of suitable dimensions fitted with the necessary gages, pressure reducing and safety valves. Drainage taps are provided at convenient locations. Opposite the entry valve at the top of the storage cylinder is the outlet valve leading to the blowpipe, this also being fitted with a reducing valve.



OXYGEN GENERATING APPARATUS.

a—Generator.
b—Outlet for gas.
c—Pipe to cleaning device.
d—Washer and cooler.
e—Storage cylinder.
f—Entry valve.
g—Outlet valve to blowpipe.

In operating with this process, the acetylene is not used under high pressure, the only requirement being about 2 pounds, which is sufficient to insure a steady flow from generator to blowpipe. A special acetylene generator is built to meet these conditions. The welding plant includes blow-pipes which are fitted with 34 nozzles, permitting the handling of any desired thickness of metal.

THE MINERAL RESOURCES OF FRANCE.

Figures published in the *Mechanical Engineer* of London, show that France has an abundance of iron ore, but is seriously handicapped in her metallurgical development by a scarcity of coal. France is a large exporter of mineral ore, having in 1907, exported to Belgium 792,000 tons, to Germany 456,000 tons, and to England 277,000 tons, the total being 93 per cent of the mineral ore exported. This is a large increase over 1900, the three countries noted above having in that year received from France only 282,000 tons. Concurrently with the increase in iron ore exports, cast iron production in France has also increased, the output of 1907 being 3,509,000 tons greater than in 1906. The scarcity of fuel in France is a serious drawback to further development. With all the coal mines in the country working full, the production of the country is not sufficient for its own needs, and it must import about 20,000,000 tons of coal. Where this coal is to be obtained is a serious question, as the supply from Belgium seems to be limited, the coal output of Belguim last year being barely sufficient for home consumption. The imports from Germany last year increased by about 500,000 tons, while the coal imported into France during the same year increased about 4,500,000 tons. As new mining laws have been enacted in England, it is a question whether that country will be able to increase her exports to France, and if not, the French iron masters are face to face with a grave problem. Several French colliery companies have been compelled not only to reduce the amount to be supplied for two-year contracts, but to increase prices very considerably.

Market for American Coals.—Mediterranean sea ports furnish a market for standard American coal, if it can be laid down there on terms slightly better than those of English shippers, according to Consul-General Robert P. Skinner of Marseille. Marseille has received and marketed 250,000 tons of American coal in one year. It is stated that ultimately this coal will enter the French market in large quantities, but it will be necessary for the shippers or American railroads to make the ocean freight rates themselves. The enterprise should be undertaken on a large scale, the vessels being secured under long time charters or owned outright. It is also stated that railroads in the United States might find it to advantage to give shippers the benefit of a low through rate to Europe for the sake of the land tonnage which they would obtain, and the steadying influence of foreign markets to which coal could be shipped and stored during dull times in America.

ELECTRIC SMELTING

Discussed by a Canadian Report—Exploration of Ore Deposits.

Toronto, Canada, Aug. 14.—The summary report of the mines branch of the Canadian Department of Mines for the fiscal year 1907-08 just issued, comprises, in addition to much statistical information, which has previously appeared in a preliminary report, the results of investigations into the mineral resources and metallurgical industries of the country. An examination into the iron ore deposits of Vancouver and Texada Islands on the Pacific Coast was made by Einar Lindeman with the view of obtaining data looking to the establishment of the iron industry in British Columbia. He reports that as regards ore supply the deposits on Texada Island and at Head Bay, Klaanch river and Quinsam river, Vancouver Island, are of sufficient magnitude to furnish ore to a blast furnace for a number of years. A number of analyses showing the quality of the ore are given. The magnetites are high in iron and few, if any, have a phosphorus content exceeding 0.05 per cent, and in most cases considerably below this figure, but on the other hand they are, as a rule, high in sulphur, though not to such an extent as to render them unfit for smelting. The coal output of the Vancouver Island mines last year is estimated at 1,325,000 tons and the production of coke was about 17,000 tons. This coke contains 15 to 16 per cent of ash, which, by a more careful separation of the shale, could be reduced to about 12 per cent. Limestone deposits in close proximity to the iron ore, which are of great extent and unusual purity, would furnish an inexhaustible supply of excellent fluxing material. The raw materials being adjacent to the coast, are favorably situated for transportation and shipments could be made all the year round to a furnace established anywhere on the coast line. The principal offset to these highly favorable conditions is the fact that labor cost is greater in British Columbia than elsewhere in Canada. Moreover the market in that province for manufactured iron will be a limited one for some time, and as the American duty of $4 per ton on pig iron will operate against its exportation to the United States, it might be necessary to find a market elsewhere for the surplus output.

An investigation of the iron ore deposits on the Nipisiguit river, 15 miles from Bathurst, N. B., revealed their value and also demonstrated the utility of magnetometric surveys, which showed that the commercial value of the property lay in another direction than the deposit previously known, The result was the acquisition of the property by a syndicate which will shortly begin operations. Iron ore traces near Penetanguishene, Ont., were investigated by B. F. Haanel, who reported that there was no deposit of commercial importance.

Electric Smelting.

The question of electric smelting receives some attention in the report with a view to the solution of the problem of the direct production of steel from the ore, in connection with which technical difficulties have been encountered. It is thought that these may be overcome by the application of the Lash steel process in an electric furnace and the Canadian Lash Steel Process Co., of Niagara Falls, furnishes a description of its working. Successful experiments with this process in the case of the open-hearth furnace on a commercial scale indicates its possibilities with regard to electric smelting. In this process, finely divided ore is mixed with carbon, a certain quantity of finely divided carboniferous iron, such as cast-iron borings, or granulated pig iron, sawdust and fluxes suitable for the iron ore under treatment. The working of the process can best be explained by comparison with the open-hearth "ore process" which consists in forming a bath of molten pig iron and then adding thereto a sufficient amount of ore (iron oxide) to reduce the carbon content of the metal to the desired amount. The oxygen of the ore, combining with a certain amount of the carbon in the pig iron, forms carbon monoxide gas and sets free the iron of the ore to mix with the bath of molten metal. Thus a mixture of approximately 75 per cent pig iron and 25 per cent ore can be worked up. But in the Lash process the proportions are very different, for a large proportion of ore can be used with a small percentage of carboniferous iron. A typical mixture has the following percentage composition:

	Per Cent.
Iron ore	54
Cast iron borings or granulated pig iron	27
Sawdust	4
Limestone	4
Coal tar	3
Coke	8
	100

These constituents are finely divided and intimately mixed, and when heated to a high temperature the reactions that occur are similar to those found in the open hearth furnace using the ore process. The cast iron borings correspond to the molten bath of pig iron and re-act with the ore, but the latter being in large excess, it is necessary to supply a certain amount of free carbon in the form of coke for the complete reduction of the ore. The great economy of the process lies in the substitution of a large amount of ore for pig or scrap iron. In using the Lash mixture in the open hearth furnace, it is necessary to have a bath of molten metal, as otherwise it would not be practicable to heat it to the reacting temperature without losing carbon in the mixture by combustion. If, however, the charge is put into an electric furnace, no difficulty of the kind is experienced, since the gas in an electric furnace is neutral, in contradistinction to the oxidizing atmosphere of an open hearth furnace. Experiments using the Lash mixture have been made in the electric furnace on a small scale with successful results. It was found that the yield of metal amounted to 98 per cent of the metallic content of the mixture. The average cost of the materials in Canada, for the production of 100 tons of steel ingots in the regular open hearth furnace is $20.79 per ton, and it is claimed that by using the Lash mixture in the electric furnace, this can be reduced to $16.22 per ton, and that the technical difficulties which have been encountered in the production of steel directly from the ore by electricity will disappear. Different electric furnaces are being tested to ascertain the type most suitable for the application of the process.

A NEW MACHINE SHOP.

A new machine shop and foundry is under construction for the Goldschmidt Thermit Co., 90 West street, New York City. The building is to occupy a site 34 x 90 feet in size, just back of the present factory in Jersey City, and it is to be fitted up for the purpose of handling to better advantage the extensive repair work which is now being carried on at these works. Traveling cranes will be provided, and no expense will be spared to make the building the most complete thermit repair shop in the country. Special attention will be paid to the rapid execution of repair to electric motor cases, truck frames, cast steel gear wheels, crank shafts, and in fact any wrought iron and steel sections not exceeding 2,000 pounds in weight.

THE MECHANICAL PROPERTIES OF STEEL TUBING.

The National Tube Co., Pittsburg, is distributing a book 4½ x 7 inches, 94 pages, entitled "The Mechanical Properties of Shelby Seamless Steel Tubing." In the preface the company states that a new handbook is in course of preparation to meet the numerous requests for information relating to tubes and tubular construction, but as the preparation of the matter for this book will require much investigation and research, involving considerable time, it has been decided to issue the different parts in the form of advance sheets, in order that the data may be rendered available as soon as they are ready. The book under consideration is the first of these advance sheets. It is a thorough exposition of the subject of the mechanical properties of seamless steel tubing. It contains 20 tables on the properties of seamless steel tubing, none of which, with the exception of three, has been published before. The matter in the book has been prepared under the immediate direction of Prof. Reid T. Stewart, who for many years has made a special study, both theoretical and experimental, of the mechanical properties of steel tubes and pipe.

In addition to the tables, over 40 pages are devoted to theoretical discussions of tubular mechanics, the subjects taken up being the strength of tubes to resist internal and external fluid pressure; the mechanical properties of solid and tubular beams; the mechanical properties of solid and tubular columns and struts, and safety factors and safe working fiber stresses. The scope of the tables comprised in the book may be comprehended from the following list:

Table 1—External surfaces and volumes.
Table 2—Inside diameters.
Table 3—Inside surfaces.
Table 4—Sectional areas of walls.
Table 5—Weights in pounds.
Table 6—Capacities in cubic inches.
Table 7—Capacities in cubic feet.
Table 8—Capacities in United States gallons.
Table 9—Internal pressures by Clavarino's formula.
Table 10—Internal pressures by Birnie's formula.
Table 11—Collapsing pressures by Stewart's formula.
Table 12—Safe external pressures by Stewart's formula.
Table 13—Moments of inertia, *I*.
Table 14—Section moduli, *Z*.
Table 15—Radii of gyration, *R*.
Table 16—Properties of beam and column sections.
Table 17—Properties of solid and tubular beams.
Table 18—Properties of solid and tubular columns.
Table 19—Weight factors for tubes in all thickness and diameter.
Table 20—Properties of tubes, advancing by 0.005 inch in thickness and by 0.01 inch in diameter.

The book forms a most valuable addition to engineering literature, as it places on record much valuable information which has not been available heretofore.

GETTING GOOD CONTRACTS.

Indianapolis Fabricator Is Awarded Work All Over Country.

Indianapolis, Ind., Aug. 17.—The Citizens' Gas Co., which proposes to furnish artificial gas to consumers at 60 cents per 1,000 feet, has let practically all of the contracts for construction. A contract has just been closed with the United Coke & Gas Construction Co., New York City, for a plant of 50 by-product ovens for the generation of high grade coal gas. Work is to be started on this plant immediately and it is expected that the gas company will be operating some time next year.

Although it was announced some time ago that the Elwood plant of the American Sheet & Tinplate Co. would close from July 27 to Aug. 1, the plant was not reopened on the latter date. It is unofficially announced that the plant may reopen Aug. 24, although employes were asked to hold themselves in readiness for a possible resumption Aug. 17.

The Brown-Ketcham Iron Works of this city recently closed some large contracts for structural steel. These include 215 tons for the United States navy yard at Bremerton, Puget Sound, and for a large hotel at Seattle, Wash. The work will be turned out at the company's plant at Greensburg, Pa., because freight rates will not allow it to be manufactured here. The company has received substantial orders from Washington, D. C., Boston, Kansas City, San Francisco and Grand Rapids, Mich., the latter being for the new postoffice building.

The Vincennes Pipe & Castings Co., Vincennes, has resumed operations with a large force of employes. The plant had been idle for some time due to a lack of orders, but now has enough orders ahead to keep running for some time.

The newly enlarged plant of the Minnesota Stove Co., Shakapee, Minn., is now fully occupied, the offices having been removed into new quarters just recently. The plant now has 5,000 feet of floor space, and all the departments have been enlarged to practically double the former size. The new plant is the result of 18 years of unremitting work on the part of Col. G. L. Nye, now its sole owner, as well as to his son Wheeler, who is in charge of the office work.

WILL STRIP GROUP.

Contracts Let for Opening Up Important Mesabi Ore Mines.

The most important group of underground mines on the Mesabi range is about to be stripped and it is understood the contract has already been let to the Drake-Stratton Co. This group includes the Glen, Clark, Chisholm and Monroe-Tener mines at Chisholm. The Monroe-Tener is in part an open pit already, more than 2,000,000 yards of overburden having been removed to make a milling pit of part of this immense deposit. A part also was being worked underground and the layout and equipment of the mine were noted as typical of the best possible practice. In the future, however, the entire mine will be developed into a steam shovel open pit and the stripping work now in progress is with that end in view. An approach more than one-half mile in length, which it is expected will be completed about the first of the year, has already been started. The Glen and Clark mines have been operated underground entirely, the former with two shafts and the latter with four. The ore bodies adjoin and cover a large area which is contiguous to the Monroe-Tener and Chisholm mines. The Chisholm mine will also be worked out through the open pit eventually. Adjoining this group is the Leonard mine which had, prior to being taken over by the Steel Corporation last year, been stripped within a very limited area and mined with small steam shovels and dump cars and an inclined shaft. The stripping of the adjoining mines according to the plans now under way will open the way for getting down into the Leonard, which has become quite deep. A comparatively brief time into the future will see this entire area to the southwest of Chisholm opened up into one tremendous pit.

Immediately west of this area, the Pillsbury is already a large pit, having been stripped during the past three seasons and beyond the Pillsbury toward Hibbing only a little over a mile intervenes between this group and the Morris, which will one day come close to being a part of the Hull-Rust, Mahoning, Burt-Poole and Sellers pits, which even now are almost a continuous excavation.

Plans for a foundry and warehouse 160 x 275 feet for the Howard Stove & Mfg. Co., Omaha, Neb., to cost $25,000, are being prepared.

Sharp Backset to Long Rise

Reaction of moderate proportions, which began Wednesday, put an end temporarily at least to the steady upward price trend so much commented upon the past three weeks. Suspicion in which it had been held as unwarranted by the plainest industrial facts was more plainly evidenced upon the first symptoms of price decline by the ready appearance of "stop loss orders" with which the market had been honeycombed. Standard railroads held firm in the face of the decline in industrials. "Discounting" of an alleged "industrial boom" as ready made and right at hand was itself discounted, but to a degree which some competent authorities hold is still not large enough to be salutary from the viewpoint of market steadiness.

An active opening Monday was conducive to strength, Steel and several railroads advancing to the highest prices of the year. Tuesday's active opening met with sharp reaction later, declines on the entire list ranging from 1 to 3 points. Weak opening Wednesday was followed by rallies, the list closing stronger. Reactionary prices ended Thursday's inactivity, weakness characterizing Friday's large volumed sales. Saturday's close was marked by a rally following the opening's weakness.

A decided sag in copper stocks came right upon the heels of Monday's price advance of a quarter cent in the metal itself. Further declines in the metal price at home and abroad Wednesday and Friday served to account for the determined decline in copper stocks.

Money rates continued easy, call rates ruling from 1 to 1¼ per cent and time rates being nominal. The surplus idle cars were reported as 27,000 less than two weeks ago; from this number, 5,000 being deducted because of being sent to repair shops. Commercial failures for the week were 248 compared with 262 the preceding week and 275 the week before. Clearing house exchanges in the United States showed a decrease from the preceding week as well as a year ago.

The increase in actual cash by all the New York banks for the week was over $8,000,000 despite an actual loan increase of $19,000,000. The percentage of actual reserve reported by clearing house banks was 29.43, an increase of 0.08 per cent; and of non-member banks 36.6 per cent. Deposits of both increased about $25,000,000. The number of shares dealt in was 4,816,402, compared with 4,913,865 the preceding week, and 5,145,964 the corresponding week last year. Bonds exclusive of government bonds reached the total of $18,308,000, compared with $20,331,000 the preceding week, and $9,790,000 last year.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Aug. 15	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	11¼	— ¼	Sept. 3	19,820 000			
Allis-Chalmers pr	34⅞	+ ⅛	Feb. 3	16.150,000	7 cum	1¾ Q.	Feb., 1904
American Can	6⅝	+ ⅛		41 233.300			
Am. Can pr	61	— ½		41,233,300	7 cum	1¾ Q.	July, 1908
Am. Car & Foundry	40⅛	— ¾	June 25	30,000,000		½ Q.	July, 1908
Am. Car & Fdy. pr	102	- 1⅛		30 000.000	7 n. c.	1¾ Q.	July, 1908
American Loc	56	—1	Oct. 20	25,000.000	5	1¼ Q.	Aug., 1908
American Loc. pr	107	—2		25,000.000	7 cum	1¾ Q.	July, 1908
American Ship	46⅛	+3⅛	Oct. 14	7 60 .000	4	1 Q.	June, 1908
American Ship pr	100½	.....		7,900.00	7 n. c.	1¾ Q.	July, 1908
Am. Steel Foundries.ctfs	9	+1	Oct. 6	15.810 000			
Am. Steel Foundries(new	36½	+3¼		17,240.000	6 cum	2¼	Aug., 1904
Barney & Smith	45	.....	June 2	2.000.000	4	1 Q.	Sept., 1907
Barney & Smith pr	102	.....		2.500 000	8 cum	2 Q.	June, 1908
Bethlehem Steel	21½	—2	April 7	14.862.000			
Bethlehem Steel pr	51¼	—2¾		14 908 000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	35¼	—1	March 17	45.000 000*	6	1½ S. A.	Aug., 1903
Cambria Iron	46	.....		8,168.000*	4	2 S. A.	April, 1908
Chicago Pneumatic Tool	30	.....	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	33	— ¾	Oct. 19	34 235 500		3⅛	April, 1902
Crucible Steel	7⅜	— ⅛	Oct. 21	24.578 400			
Crucible Steel pr	47¾	—2⅜		24,436.500	7 cum	1 Q.	Dec., 1907
Empire Steel	7	+2	Feb. 26	1,254.770			
Empire Steel pr	48	+3		2 500.000	6 cum	3 S. A.	July, 1908
Fay & Egan	100	.....	Feb. 18	1.000.000	6	1½ Q.	May, 1908
Fay & Egan pr	110	.....		1.00 000	7 cum	1¾ Q.	May, 1908
General Electric	142⅜	-4⅜	May 12	65,167,400	8	2 Q.	July, 1908
Harbison-Walker	12	.....	Jan. 20	18.000.000		½	Oct., 1907
Harbison-Walker pr	75	.....		9.6 0,000	6 cum	1½ Q.	July 1908
International Pump	24½	— ¼	June 2	17.787.300		1	April, 1905
International Pump pr	80⅝	+1		13,835,000	6 cum	1½ Q.	Aug., 1908
Lackawanna Steel	35½	.....	March 11	34,971 400		.....	.....
Lake Sup. Corp	7	.....	Oct. 7	40,000,000			
New York Air Brake	75½	—3½	June 18	8 012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8.500 000	6	1½ Q.	June, 1908
Niles-Bement-Pond pr	100	.....		2.000.000	6 cum	1½ Q.	May, 1908
Otis Elevator Co.	35	.....	March 16	6.156,600		1½ S. A.	April, 1908
Otis Elevator Co. pr	90	.....		5.449.500	6 n. c.	1½ Q.	July, 1908
Penn. Steel	60	.....	May 11	10.750 000			
Penn. Steel pr	98	.....		16.5 0 400	7 n. c.	3½ S. A.	May, 1908
Pittsburg Coal Co.	12½	— ¼	Feb. 10	28.853 400		.....	Nov., 1906
Pittsburg Coal Co. pr	46½	— ½		27,030.800	7 c.	1¾	April, 1905
Pressed Steel Car	34	-2½	Feb. 19	12,500.00		3	Aug., 1904
Pressed Steel Car pr	96	+2¼		12.500.000	7 n. c.	1¾ Q.	Aug., 1908
Pullman	165½	— ½	Nov. 11	100 000 000	8	2 Q.	Aug., 1908
Railway Stl. Spring	43⅝	—1⅜	March 5	13,500.000	4	2 S. A.	April, 1908
Railway Stl Spring pr	100	+ ½		13,500.000	7 cum	1¾ Q.	June, 1908
Rep. Iron & Steel	22	—2⅝	Oct. 21	27,191.000			
Rep. Iron & Steel pr	76½	—5½		20,416 900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	62¾	—1¼	March 11	10,000,000	5	1 Q.	June, 1908
Sloss-Sheffield pr	101	+1		6.700.0 0	7 n. c.	1¾ Q.	July, 1908
U. S Pipe & Fdy	27¼	— ⅝	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy pr	78	— ½		12 500,000	7 n. c	1¾ Q.	Sept., 1908
U. S Steel	44⅝	—2⅞	April 20	508,302,500	2 n. c.	½ Q.	June, 1908
U. S Steel pr	108¼	—1½		360,281.100	7 cum	1¾ Q.	June, 1908
U. S Steel 5'	100	+ ⅛		463,798 000	5	5 A.	.....
Va. Iron, Coal &Coke	61	—4½	Nov. 17	9 073 880			
Westinghouse Elec	6-¼	—7¾	June 24	23 933 200*	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	109½	+4½	Oct. 6	11.000.000*		2½ Q.	July, 1908

Par value of shares, $100, except those starred (*), $50

Copper Stocks.

New York.—Amalgamated Copper closed 76⅛, a net loss of 6⅝.

Boston.—Butte Coalition closed 27, a net loss of 1¼; Calumet & Arizona closed 119, a net loss of 9; Calumet & Hecla closed 675, a net loss of 20; North Butte closed 79¾, a net loss of 5¼; Quincy Mining closed 94, a net loss of 4.

Financial Notes.

The Sloss-Sheffield Steel & Iron Co. has declared the regular quarterly dividend of 1 per cent on common stock, payable Sept. 1; the Pittsburg Valve, Foundry & Construction Co., the regular quarterly dividend of 1¼ per cent, payable Aug. 31; the National Enameling & Stamping Co., the regular dividend of 7 per cent on preferred stock for the fiscal year, payable in four quarterly installments of 1¾ per cent each at the end of each quarter; the J. A. Fay & Eagan Co., regular quarterly dividends of 1¾ per cent on both preferred and common stocks, payable Aug. 20.

The Watkins Machine & Foundry Co., Hattiesburg, Miss., has increased its capital stock to $100,000.

NEWS FROM MANY INDUSTRIES

New Buyers:—

J. A. Briggs, West Roxbury, B. F. Upham, Roxbury, and H. A. Buck, Waltham, Mass., have incorporated the Southgate Machinery Co., Boston, machinery. The capital stock is $500,000.

Colin C. Moncrieff, Bloss P. Corey, George G. Moncrieff and others have been incorporated as the Zenith Manufacturing Co. Ltd., to manufacture machinists' tools, machines, etc., at Toronto, with a capital of $40,000.

The Canadian-Weber Gas Engine Co., Ltd., has been incorporated to conduct a foundry and machine shop business at Toronto, Ont., with $300,000 capital. The incorporators are Robert G. Weber, Robert J. Goudy, Hiram Kibely and others.

The International Lock Nut & Bolt Co., Paterson, N. J., has been incorporated to manufacture lock nuts and bolts. The capital stock is $1,000,000, and the incorporators include Max Rosenstein, Sigmund Rosenstein and Harry S. Munzer, Paterson, N. J.

Read-Huetten Pressure Co., Hoboken, N. J., to manufacture pumps and apparatus, with $10,000 capital stock, has filed articles of incorporation through the following: William H. Read, Philadelphia, J. Huetten and Martin Daab, Hoboken, N. J.

Articles of incorporation have been filed by the Joliet Wheel Mfg. Co., 100 Washington street, Chicago, to manufacture engines and machinery, with $40,000 capital stock. Joseph W. Latimer, E. L. Kern and J. E. Deahl are the incorporators.

The Central Belting Co., New York City, has been chartered to manufacture leather belting, and mill supplies, with $20,000 capital stock. The incorporators are Harold B. Elgar, Robert E. Logan, and Frederick Hildebrandt, 2 Wall street, New York City.

The Curtis Marine Turbine Co. of the United States, Quincy, Mass., turbines, has been incorporated with $10,000 capital. The officers are: President, Francis T. Bowles, Barnstable, Mass.; treasurer, Kennard Winsor, Brookline, Mass., and clerk, Henry Endicott Jr., Weston, Mass.

The Model Fireproof Sash & Door Co., New York City, has been granted a charter to manufacture fireproof trimmings, doors, metal covered goods, etc., with a capital of $5,000. The company has these incorporators: David D. Deutsch, 318 East Fourth street; J. Charles Weschler, 315 West Ninety-seventh street; Louis B. Rosenberg, 113 West Forty-second street, all of New York City, and Alanson P. White, East Orange, N. J.

A charter has been granted to the Illinois Stoker Co., Alton, Ill., to manufacture mechanical stokers. The company is capitalized at $50,000, and has these incorporators: James Duncan, William M. Duncan and George D. Duncan.

The Hoffman Patents, Ltd., Toronto, has been incorporated with $40,000 capital by Charles T. G. Croft, Frederick A. Clarry, John O. Mercier and others, for the purpose of acquiring the inventions of William M. Hoffman and Bertram Hoffman, and manufacturing engines and boilers.

The Sumer Mfg. Co., Orange, N. J., has been organized to manufacture the Miller water heater and the Miller gas and smoke consumer. The capital stock of the company is $100,000, and the incorporators are: John Miller, Michael Winter, William F. Wurster, Robert Wright and James R. Stewart, Orange, N. J.

A charter to manufacture self-heating soldering irons, etc., has been granted to the Latest Inventions Co., New York City. The capital stock is $50,000, and the charter members of the company are Frank J. Mann, 2357 Hoffman street; Amedio Di Toro and Teefile Zaneheili, 631 Morris avenue, all of New York City.

Articles of incorporation have been filed by the Burdict Bolt & Nut Machinery Co., Buffalo, which will engage in the manufacture of machines for hexagon, square and carriage headers, automatic threaders, etc. The capital stock has been fixed at $10,000. Those interested are: Orrin C. Burdict, Richard W. Gardner and George H. Gardner, Buffalo.

With an authorized capital of $25,000, the J. H. Lehman Mfg. Co., New York City, has been incorporated to manufacture mechanical and electrical appliances, etc. Those named in the charter are Patrick H. J. Daly, 939 President street, Brooklyn; George W. Anderson, 46 Jane street, and Joseph H. Lehman, Herald Square Hotel, both of New York City.

The Joliet Steel Car Mfg. Co., Joliet, Ill., was granted a certificate of incorporation under the laws of the state of Delaware, to manufacture and construct non-telescoping cars and steel railway cars of every description. The incorporators are John R. Meacham, Bryan Hutchinson and C. B. Antram, of Joliet, Ill., and Harry W. Davis of Wilmington, Del. The capital stock is placed at $2,000,000.

New Construction:—

Walter Losche is having plans prepared to establish a machine shop at Topton, Pa.

The machine shop at Burlington, Vt., under construction for E. J. Davis, is nearing completion.

The National Machinery Co., Tiffin, O., is having plans prepared for remodeling its plant, making it 100 x 450 feet.

The Walcott & Wood Mfg. Co., Jackson, Mich., has increased its capital stock $25,000 to provide for erecting a machine shop.

The Prior Brass Mfg. Co. has plans drawn for a shop 65 x 330 feet at Kansas City, Mo., for manufacturing plumbing and railroad supplies.

The Richmond Stove Co., Richmond, Va., has taken out a permit to rebuild its brick factory and storage house to cost $2,500, repairing damages from a recent fire.

The Salina Foundry & Mfg. Co., Salina, Kans., has taken out a permit to build a cement building to house the plant, the building to be completed within 60 days. It will be 50 x 112 feet, two stories.

The Byron Jackson Iron Co., Berkeley, Cal., has had plans prepared for additions that will cost in the neighborhood of $20,000. The additions include a pattern storage house and an annex to the machine shop.

The Johnston & Jennings Co., Cleveland, has awarded to the D. C. Griese & Walker Co. a contract for an addition to its machine shop on Addison road. The building will be of brick and steel, 50 x 100 feet.

The offices of the Hamilton Steel & Iron Co., Hamilton, Ont., will be removed shortly to a site on Sherman street, close to the blast furnace, where an office building, for which bids are being asked, will be built.

The United American Iron & Steel Co., Albany, N. Y., has purchased 5½ acres of ground at Harrisburg, Pa., and will erect an up-to-date storage plant. Several buildings and shops will be erected in which six shears for cutting up scrap will be installed.

The magnet system of loading and unloading will be used. The company now has large storage yards at Albany, N. Y., Rutland, Vt., and Burlington, Vt. The Harrisburg plant will be in charge of William E. Friedman, secretary of the company.

The town of Pembroke, Ont., has given the Garry Brook Co. a free site and a fixed assessment for 10 years in consideration of the company establishing a factory for malleable iron goods to employ not less than 50 men.

The Scully Steel & Iron Co., Chicago, is taking figures on a warehouse to be built at Ashland avenue and Twenty-fourth street, one story, 231 x 631 feet, of steel reinforced concrete construction, with common red brick and stone exterior, to cost $300,000.

Work has been commenced on the new machine shops of the Sanford Machine & Foundry Works, Sanford, Fla., in which Messrs. Peglow, Keely and Diefenderfer are largely interested. It will cost about $10,000, and it is expected to be ready for occupancy by Sept. 1.

The Hunter Bridge & Boiler Co., Kincardine, Ont., has asked for bids for constructing additions to the present plant.

E. Kepler, formerly of Milwaukee, is at the head of the company, and is now constructing a plant for the manufacture of gas engines at Corliss, Wis. The new plant will employ 100 men when complete.

The Industrial Works, Bay City, Mich., manufacturing railroad cranes, wrecking, pile-driving and dredging apparatus, has begun work on a new foundry and erecting shop. The two buildings will be of steel frame construction. The foundry will be devoted to steel castings. The erecting shops will be over 400 feet long.

The Phoenix Foundry & Machine Co., Springfield, Mo., recently opened its new foundry department, the first charge of metal being drawn Aug. 4 in the presence of a number of friends. The new addition is 50 x 87 feet, beside the 12 x 14 cupola house. A five-ton crane, as well as a trip hammer, will be installed shortly. The officers of the company are: President and manager, George H. McCann; vice president, T. J. Murray; secretary, George J. McCann.

General Industrial:—

The Central Foundry & Machine Co. advises that in becoming the successor to the High Point Machine Works, High Point, N. C., it is taking over a business which has been established for over 19 years, is completely equipped to turn out any class of machine, pattern or foundry work, and will not be in the market for anything aside from ordinary shop supplies for some time. It manufactures steam engines, saw mills, wood working machinery, etc.

The equipment of the old Guest foundry at Pottstown, Pa., has been purchased and removed by John A. Selemyer, who will establish a foundry at Bramcote, Pa.

The Camden Iron Works, Camden, N. J., has received a contract for furnishing 1,750 tons of iron pipe and castings to the Boston water works department for $39,465.75.

The Duisdieker Foundry Co., Peoria, Ill., was the successful bidder for 85,000 pounds of castings for the proposed plant of the Corn Products Co., near Chicago.

The Salt Lake City Engineering Works, Salt Lake City, Utah, advises that although there was recently a fire at its plant, yet the flames were extinguished before much damage was done.

A petition in involuntary bankruptcy was filed recently in the United States district court at Buffalo against the Stevenson Machine Co., by several creditors with total claims amounting to $1,441.

At the first meeting of creditors of the Utica Stove & Repair Co., Utica, N. Y., recently held, Seward H. Mills was appointed trustee. The company was a co-partnership conducted by Fred E. Schultz and Maurice Chakin.

The Maryland Steel Co. has received a contract from the government to build a submarine rock drill barge for the Isthmian canal commission. Work on the barge will begin immediately, and be pushed rapidly to completion.

The Columbus Iron Works Co., Columbus, Ga., writes that the recent increase in capital stock does not mean any additions or improvements to the already large plant, but is a stock dividend to bring the stock up to what it is believed it should be.

The United Iron Works Co., Iola, Kans., has opened a small shop of one department at Sapulpa, Okla., to meet the growing demand in that section for tankage and all kinds of steel plate construction. The shop was located at Sapulpa as being the most accessible to the most active oil centers in the state. It will include a building 40 x 75 feet, equipped with bending rolls, finishing, splitting and bevel shears and air compressor. E. A. Rosenbusch has been placed in charge of the company's sales office in Tulsa, Okla.

The Buckeye Engine Co., Salem, O., has been awarded the contract for building two gas engines to be operated by natural gas for the Salem Electric Light & Power Co. at its new plant. The company has awarded to the Crocker-Wheeler Co., Ampere, N. J., the contract for two 60-cycle alternating current generators of 750 horsepower each.

T. J. Green, Judge Mansfield and G. M. Skiles, representing the projectors of the newly organized Shelby Tube Co., Shelby, O., are endeavoring to purchase from the officials of the National Tube Co. the site of the National company's old plant at Shelby, recently destroyed by fire. It is proposed to place the new independent plant on the site of the old one, if possible to purchase it.

The General Stamping & Mfg. Co., 359 Washington street, New York City, recently incorporated, advises that although plans are still in the maturing stage yet the company is already manufacturing, having placed six presses and some other machinery. For the present, the offices and shops will be located on Washington street, where, beside the usual stamping business, light manufacturing will also be added and a number of patented novelties placed upon the market.

Among the orders recently placed in Cleveland for Isthmian canal supplies are the following: The Cleveland branch of the Chicago Pneumatic Tool Co., machine parts valued at about $700; the National Malleable Castings Co., an order for 1,000 uncoupling and lock levels for flat cars, as well as 6,000 tower knuckle blocks; to the Pittsburg Valve & Fitting Co., Barberton, O., 400 feet of malleable iron ells, and the Williams Storage Battery Co., Cleveland, a 28-cell storage battery for car lighting.

Charles E. Francis & Bro., Rushville, Ind., manufacturer of machinery, advises that although recently incorporated the company is an old established concern formerly operating in Cincinnati, but now located in the newly built foundry at Rushville, which is equipped with new machinery, cranes, etc. The management and ownership remains practically the same, two employes being stockholders with the old proprietors, Charles E. and Harry G. Francis. No additional equipment will be needed.